FACETS OF POSITIVE AFFECT AND EMOTION REGULATION IN DAILY LIFE

Allison Dornbach-Bender

Dissertation Prepared for the Degree of

DOCTOR OF PHILOSOPHY

UNIVERSITY OF NORTH TEXAS

August 2021

APPROVED:

Camilo Ruggero, Major Professor
Jennifer Callahan, Committee Member
Danica Slavish, Committee Member
Yolanda Flores Niemann, Interim Chair of the Department of Psychology
Tamara L. Brown, Executive Dean of the College of Liberal Arts and Social Sciences
Victor Prybutok, Dean of the Toulouse Graduate School

Dornbach-Bender, Allison. *Facets of Positive Affect and Emotion Regulation in Daily Life*. Doctor of Philosophy (Clinical Psychology), August 2021, 87 pp., 23 tables, references, 120 titles.

Positive affect, which has been broken down into four lower-level facets (i.e., joviality, attentiveness, self-assurance, serenity), has demonstrated numerous ties to physical and mental health. The experience of positive affect can be regulated by emotion regulation strategies. However, few studies have assessed their relationship, and no studies have examined the relationship using the lower level facets of positive affect. The link between positive affect and emotion regulation may be of particular importance for individuals at increased risk for bipolar disorder, as both are disrupted in individuals with the condition. The aim of the present study was to examine the relationship between positive affect and emotion regulation while also exploring whether risk for bipolar disorder moderated their relationship. Undergraduates (N = 155) completed measures of emotion regulation, affect, and bipolar disorder risk at baseline. Using ecological momentary assessment (EMA), participants completed surveys 3 times a day for 7 days. Hierarchical linear models were estimated and revealed significant effects between certain baseline emotion regulation tendencies (experiential avoidance/ psychological inflexibility, rumination, behavioral social avoidance) and daily positive affect facets as well as between daily emotion regulation use (i.e., reappraisal, acceptance, reflection, savoring, mindfulness social support, suppression, rumination, procrastination) and daily positive affect facets. Bipolar disorder risk was not found to moderate the relationship. Findings support the use of strategies emphasized in evidence-based treatments and highlight the importance of daily practice of emotion regulation skills.

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CHAPTER 1

INTRODUCTION

Positive Affect

Positive affect is emotionality reflecting pleasurable experience and engagement with the environment (Clark, Watson, & Leeka, 1989). Positive affect may include feelings such as excitement, contentment, cheer, and pride (Watson., Clark, & Tellegen, 1988). The experience of positive affect may be brief (i.e., state dependent) or reflective of longer lasting, temperament factors (i.e., trait). Recent examinations of positive affect and its counterpart, negative affect, have suggested that positive and negative affect are relatively independent factors that can be experienced simultaneously (Cropanzano, Weiss, Hale, & Reb, 2003). Whereas negative affect has consistently demonstrated associations with all internalizing disorders (Mineka, Watson, & Clark, 1998; Naragon- Gainey, McMahon, & Park, 2018; Watson & Naragon- Gainey, 2014), positive affect is associated with only some disorders. Specifically, it demonstrates positive associations with bipolar disorder (Gruber, 2011a; Stanton & Watson, 2015; Watson et al., 2012) and negative associations with depression and social anxiety only (Naragon-Gainey, Watson, & Markon, 2009; Spinhoven, Elzinga, van Hemert, de Rooij, & Penninx, 2014). Unique associations with affect can also distinguish psychopathology, as indicated by the Tripartite Model of Anxiety and Depression (Clark & Watson, 1991). The model suggests that both anxiety and depression are characterized by disruptions in negative affect. However, only depression is characterized by the presence of low positive affect.

Beyond its associations with psychopathology, positive affect represents an important clinical target due to its demonstrated ties to physical and mental health. Specifically, positive affect has been associated with lower levels of cortisol, reduced mortality, improved sleep, and

increased physical activity (Steptoe, Dockray, & Wardle, 2009). Further, the experience of positive affect has been linked to greater social support and adaptive coping behaviors such as help seeking and rational decision making (Steptoe, Dockray, & Wardle, 2009). Positive emotions can broaden thoughts, behaviors, and personal resources (Fredrickson, 2001) and can help prevent experiences of anxiety and depression (Fredrickson, 2000). Individuals with greater experiences of positive affect have demonstrated greater success in multiple life domains (Lyubomirsky, King, & Diener, 2005). It is theorized that through its association with happiness, positive affect may be a hallmark of well-being (Lyubomirsky, King, & Diener, 2005). Indeed, positive affect has demonstrated strong positive links with human flourishing (Fredrickson & Losada, 2005).

As demonstrated by the above studies, most of the literature has examined positive affect as a singular construct. However, numerous models suggest that affect can be broken down into lower level facets. For instance, the circumplex structure of affect (Russell, 1980) breaks affect down into lower level facets across a circular model. According to this model of affect, highly related affective facets (e.g., sad and gloomy) are found close to each other on the circumplex's circumference, while unrelated variables (e.g., aroused and satisfied) are found 90 degrees apart. Inversely related variables (e.g., displeasure and pleasure) can be found 180 degrees apart on the circumplex. Intersecting the circumplex are two broad dimensions of pleasure-displeasure and degree-of-arousal. A 45 degree rotation of the pleasure and arousal axes results in two bipolar axes termed excitement-depression and distress-contentment. The 12-Point Affect Circumplex (12-PAC) model of affect is also a circular model of affect (Yik, Russell, & Steiger, 2011), but it differs from Russell's model due to its emphasis on levels of activation. According to this model, lower level facets range from low activation (e.g., tranquil, sluggish) to high activation (e.g.,

energetic, frenzied). The model includes a horizontal axis, or dimension, consisting of affective valence (i.e., positive, negative) and a vertical dimension of arousal. Finally, hierarchical models of affect have been proposed, with happiness and unhappiness forming one dimension, independent positive affect and negative affect forming another dimension, and specific facets of affect forming a base dimension (Tellegen, Watson, & Clark, 1999).

Among the various models, the hierarchical model of affect has been the subject of the greatest research focus. According to this model, the lower level facets of affect, as found in the base dimension of the model, represent the specific type and quality of the specific affect valence (i.e., positive, negative; Watson, Clark, & Stasik, 2011). These lower level facets have been extensively explored via repeated factor analyses, and the Positive and Negative Affect Schedule – Expanded Form (PANAS-X) was developed to capture the lower order affective facets (Watson & Clark, 1994). Among the lower order facets, Joviality, Self-Assurance, and Attentiveness have consistently loaded onto a positive affect factor (Ready et al., 2011; Stanton & Watson, 2015; Watson & Clark, 1994). Recent studies have also found Serenity to load onto the positive affect dimension, suggesting that it is a fourth facet of positive affect (Dornbach-Bender et al., 2020; Gilbert et al., 2008; Stanton & Watson, 2015).

Despite findings demonstrating that affect can be broken down into lower level facets, few studies have examined the relationship between affective facets and psychopathology. One such study found that Joviality demonstrated strong positive associations with well-being (Stanton & Watson, 2015). Joviality also demonstrated negative associations with depression, social anxiety, and social anhedonia. A second facet termed Experience Seeking combined elements of Self-Assurance and excitement seeking and was found to relate positively to psychopathology, including mania and externalizing symptoms. Another study examining facet-

level positive affect found that Self-Assurance had positive associations with mania and externalizing symptoms, Joviality had positive associations with manic symptoms, and Serenity and Attentiveness had negative associations with indicators of psychopathology (Stanton, Stasik-O'Brien, Ellickson-Larew, & Watson, 2016). Finally, behavioral activation system (BAS) sensitivity, a risk marker for bipolar disorder, has also demonstrated unique associations with positive affect facets. Specifically, heightened BAS sensitivity predicted greater daily levels of Joviality and Self-Assurance, but not Serenity (Dornbach-Bender et al., 2020). Although research involving lower level facets of positive affect is limited, findings suggest that positive affect facets have unique associations with psychopathology. Further, findings suggest that certain positive affect facets (i.e., Serenity) may have adaptive roles due to their association with well-being and lack of association with psychopathology (Dornbach-Bender et al., 2020; Stanton & Watson, 2015). In contrast other facets (i.e., Joviality, Self-Assurance) may have maladaptive roles due to their association with severe psychopathology (Dornbach-Bender et al., 2020; Stanton et al., 2016).

Emotion Regulation

Although affectivity demonstrates clear associations with various forms of psychopathology, the relationship between affect and psychopathology does not exist in isolation. Indeed, the experience of affect is influenced by emotion regulation. Emotion regulation has been defined as any attempt to control and influence emotions, regardless of whether the emotion is positive or negative (Naragon-Gainey, McMahon, & Chacko, 2017). Emotion regulation may involve changing the nature, frequency, or duration of emotions, or it may involve attempts to cultivate certain emotions. While some emotion regulation is done unconsciously, other emotion regulation may be conducted consciously through effortful or non-

effortful processes (Gross & Thompson, 2007). Strategies to regulate emotions include, but are not limited to, distraction, experiential avoidance, rumination, mindfulness, problem solving, and cognitive reappraisal (e.g., Aldao, Nolen-Hoeksema, & Schweizer, 2010; Gross, 2015; Webb, Miles, & Sheeran, 2012).

As with affect, multiple models of emotion regulation have been proposed, with each focusing on either the strategies used, the skills required, or the process of regulating emotions. One such model focuses on the various emotion regulation strategies. This strategy-focused model has examined emotion regulation strategies (e.g., acceptance, avoidance, problem solving, reappraisal, rumination, suppression) and their association with psychopathology (Aldao et al., 2010). Due to positive associations with psychopathology and negative associations with well-being, some strategies (e.g., expressive suppression, experiential avoidance, behavioral avoidance, rumination) are considered maladaptive throughout the literature (e.g., Aldao et al., 2010; Gross, 1998; Kring & Sloan, 2010; Nolen-Hoeksema & Watkins, 2011), whereas others are considered adaptive (e.g., acceptance, problem solving, reappraisal, mindfulness) due to negative associations with psychopathology and positive associations with mental health (e.g., e.g., Aldao et al., 2010; Gross, 1998; Kring & Sloan, 2010; Nolen-Hoeksema & Watkins, 2011).

However, these strategies cannot be universally categorized as maladaptive or adaptive, as the context in which each is used may better determine the adaptability and success of each strategy (Aldao & Nolen-Hoeksema, 2012). Indeed, greater variability in the implementation of adaptive strategies (i.e., acceptance, problem solving) has predicted lower levels of psychopathology (Aldao & Nolen-Hoeksema, 2012). Findings were supported across various contextual factors (i.e., emotion intensity, type of emotion, social vs. academic circumstances). In contrast, variability in the implementation of maladaptive emotion regulation strategies was

not associated with outcome, suggesting that individuals consistently use maladaptive strategies across contexts. Findings suggest that the ability to flexibly apply adaptive emotion regulation strategies according to the situation at hand is associated with positive outcomes.

Such findings highlight the importance of the context in which emotion regulation strategies are utilized. As proposed by the strategy-situation-fit hypothesis, various emotion regulation strategies may lead to well-being only when they are used in appropriate contexts (Conway & Terry, 1992). Specifically, emotion regulation effectiveness is dependent on the controllability of a given situation. Solution-focused strategies (e.g., problem solving) demonstrate greatest effectiveness in controllable situations while emotion-focused strategies (e.g., mindfulness) show the greatest effectiveness in uncontrollable situations. The strategy-solution-fit hypothesis has been supported across numerous studies (Aldao, Sheppes, & Gross, 2015; Haines et al., 2016; Troy, Shallcross, & Mauss, 2013) and highlights the importance of strategy selection and strategy-context fit to determine relative adaptiveness.

Another emotion regulation model focuses on the stages involved in emotion regulation. According to the extended process model, three stages comprise emotion regulation (Gross, 2015). The first, identification, involves awareness of the emotion and determining whether or not to regulate it. The second stage, selection, focuses on selecting a specific emotion regulation strategy to deploy. Finally, the third stage, implementation, involves implementing the selected strategy. Gross (1998) also identified specific families of emotion regulation processes from which one can select a strategy. These include influencing the situation one is exposed to (i.e., situation selection), changing aspects of the situation (i.e., situation modification), influencing one's attention to aspects of the situation (i.e., attentional deployment), modifying one's cognitive representation of the situation (i.e., cognitive change), and modifying one's emotion-

related actions (i.e., response modulation).

The third cluster of emotion regulation models focuses on the abilities required for effective emotion regulation. For instance, the adaptive coping with emotions model highlights seven emotion regulation abilities: conscious awareness of emotions, identification and correct labeling of emotions, identification of emotion causes and maintenance factors, adaptive modification of emotions, acceptance of negative emotions, confrontation of distressing situations, and self-soothing when distressed (Berking & Whitley, 2014). The model highlights that the use of each ability is situation dependent. Similarly, the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) assesses lacking or problematic emotion regulation abilities. These include non-acceptance of emotional responses, difficulties engaging in goal-directed behaviors, difficulties with impulse control, lack of emotional awareness, limited access to emotion regulation, and lack of emotional clarity. Emotion regulation deficits, as measured by the DERS, have been positively associated with negative outcomes, including PTSD symptom severity, depression, borderline personality disorder, and alcohol-related consequences (Dvorak et al., 2014; Ehring & Quack, 2010; Joormann & Gotlib, 2010; Salsman, & Linehan, 2012). Results suggests that deficits in emotion regulation may be contributing to negative outcomes across psychological disorders.

Finally, a recent meta-analysis of emotion regulation strategies found that emotion regulation fits a three factor structure (Naragon-Gainey, McMahon, & Chacko, 2017). In their meta-analytic examination of ten common emotion regulation strategies (i.e., rumination, distraction, acceptance, problem solving, behavioral avoidance, experiential avoidance, expressive suppression, reappraisal, mindfulness, worry), the three factors of emotion regulation were Disengagement (i.e., behavioral avoidance, distraction, low mindfulness), Aversive

Cognitive Preservation (i.e., rumination, experiential avoidance, low acceptance, low distraction), and Adaptive Engagement (i.e., reappraisal, problem solving, mindfulness). Such findings suggest that examinations of emotion regulation should focus on these broad dimensions of strategies.

Emotion Regulation and Positive Affect

Given negative affect's stronger association with psychopathology, a majority of the literature has focused on how individuals regulate negative affective experiences. However, limited research has also examined the relationship between positive affect and emotion regulation. Among this research, partial focus has been on means to maintain positive affect when it is already being experienced. Savoring, which involves anticipating, savoring the moment, and reminiscing (Bryant, 2003), is one means of prolonging and/ or intensifying positive emotions. Savoring in daily life has been linked to an increased number of everyday positive events, which then results in heightened positive affect (Hurley & Kwon, 2013). Specific means of savoring (i.e., present moment awareness, positive rumination) have also been associated with heightened positive affect, whereas being distracted and unable to savor the moment has been associated with diminished positive affect (Quoidbach, Berry, Hansenne, & Mikolajczak, 2010).

Other examinations of emotion regulation and positive affect have explored means to increase or enhance positive affect when it is not already being experienced. Positive reappraisal (i.e., reframing a situation to see it in a positive light) has most consistently been found to be associated with positive affect (Andreotti et al., 2013; Folkman & Moskowitz, 2000; Reich, Zautra, & Hall, 2010), and may be linked to mindfulness (Garland, Gaylord, & Park, 2009). Mindfulness training has been associated with significant increases in positive affect in

individuals with depression (Garland, Geschwind, Peeters, & Wichers, 2015). Further, meta-analytic findings have suggested that, among affect regulation strategies, reappraisal and distraction result in the greatest change in affect and may therefore be the most effective strategies for regulating affect (Augustine, & Hemenover, 2009).

Certain emotion regulation strategies can also be utilized to downregulate positive affect. Such strategies may be of particular importance in disorders characterized by elevated positive affect (i.e., bipolar spectrum disorders). However, in individuals without extreme affective experiences, such strategies may serve maladaptive roles as they mitigate the healthy effects of positive affect. Specifically, withdrawing from a situation leads to lower positive affect (Moskowitz, Hult, Bussolari, & Acree, 2009; Ntoumanis & Biddle, 1998). Reappraisal with the intention of downregulating emotions how shown to be effective at reducing positive affect, while suppression has not (Kalokerinos, Greenaway, & Denson, 2015). Experiential avoidance is associated with diminished daily positive affective experiences and, relatedly, fewer positive events (Kashdan, Barrios, Forsyth, & Steger, 2006).

Finally, individuals' natural propensity for certain emotional regulation strategies may also influence positive affect. When healthy participants spontaneously engage in emotion regulation following emotional film clips, reappraisal is used more than suppression (Volokhov, & Demaree, 2010). A propensity to engage in reappraisal may have positive outcomes, as those who tend to reappraise experience greater positive emotion, while those who tend to suppress experience less positive emotion and greater negative emotion (Gross & John, 2003). Findings highlight the importance of examining baseline emotion regulation abilities and tendencies to determine if and how they may be influencing affective experiences.

Ties to Bipolar Disorder

The interaction between positive affect and emotion regulation is particularly highlighted in bipolar disorder, a disorder characterized by the presence of severely elevated mood states known as mania and hypomania. According to the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM-5*; American Psychiatric Association, 2013), a manic or hypomanic episode is defined as a period of persistently elevated or irritable mood accompanied by symptoms such as inflated self-esteem, decreased need for sleep, increase in goal directed activity, and excessive involvement in pleasurable activities. The *DSM-5* recognizes five disorders involving periods of elevated mood that are considered part of bipolar spectrum (i.e., Bipolar I Disorder, Bipolar II Disorder, Other Specified Bipolar and Related Disorder, Unspecified Bipolar and Related Disorder, and Cyclothymic Disorder).

Given that bipolar disorders are the only disorders characterized by extremely elevated emotional states (i.e., mania, hypomania), recent research has explored the relationship between bipolar disorder and positive affect. Compared to healthy controls, individuals with bipolar disorder experience greater affective lability (i.e., rapid reversals and shifts in affect) and intensity (i.e., level of affect endorsed) than controls (Henry et al., 2008). Changes in positive affect are particularly strong following rewards, as euthymic individuals with bipolar disorder have demonstrated a prolonged elevation of positive affect following positive events (Farmer et al., 2006). In response to evidence suggesting that positive affect is dysregulated in bipolar disorder, Gruber (2011b) proposed the Positive Emotion Persistence (PEP) theory. According to this theory, affective dysfunction in bipolar disorder is not only due to excessive positive affect, but it is also due to elevations in positive affect in response to neutral and negative stimuli. As explained by the PEP theory, individuals with bipolar disorder tend to have higher baseline

levels of positive affect than those without bipolar disorder, and they tend to experience heightened positive affect when others would experience stable or decreased positive affect.

Not only is positive affect dysregulation present in individuals with bipolar disorder, but it is also evident in individuals at heightened risk for the disorder. For instance, among students with symptoms of bipolar disorder, positive affect is disrupted in response to rewarding events (Johnson, Ruggero, & Carver, 2005). Specifically, elevated hypomanic symptoms were found to be associated with greater baseline positive affect and greater positive affect following reward. Among students at risk for bipolar disorder, positive affect was similarly found to demonstrate associations with hypomanic symptoms (Gruber, Johnson, Oveis, & Keltner, 2008). In this study, students with elevated risk for bipolar disorder reported higher positive affect after watching positive, negative, and neutral film clips than healthy controls. The finding supports the PEP theory, as those with elevated bipolar disorder risk experienced elevations in positive affect regardless of stimulus type. In a community sample, greater risk for bipolar disorder was associated with significantly greater mania symptoms, higher positive affect levels, and greater fluctuations in positive affect (Hofmann & Meyer, 2006). Taken together, results suggest that disruptions in positive affect are not only present among those diagnosed with bipolar disorder, but they are also present among individuals at elevated risk for the disorder.

The disruption of positive affect in individuals with bipolar disorder and at risk for bipolar disorder has important implications for disorder course and detection. Among individuals with bipolar disorder, those who had an earlier onset of the disorder endorsed greater affective lability than those with a later age of onset (Henry et al., 2008). Further, a greater number of mood episodes was predictive of greater affective lability among individuals with bipolar disorder (Henry et al., 2008). Affective intensity and instability can also serve as a predictor of

mood episodes. Greater positive affect at baseline was predictive of greater depressive symptoms at a three month follow-up (Gershon & Eidelman, 2015). Affective instability was also predictive of greater functional impairment at follow-up (Gershon & Eidelman, 2015). These results suggest that affective lability, intensity, and stability may predict disorder onset, future mood symptoms, and functional impairment in bipolar disorder.

As outlined above, bipolar disorder is characterized by dysregulated positive affect, with certain facets of positive affect showing heightened associations with the disorder. One contributing factor to such dysregulated affect in bipolar disorder may be emotion regulation. The existing literature suggests that individuals with bipolar disorder have a tendency to rely on certain emotion regulation strategies, particularly in response to positive affect. When compared to healthy controls and family members with bipolar disorder, individuals with bipolar disorder more frequently use the strategies of rumination, catastrophizing, and self-blame (Green et al., 2011). Further, individual with bipolar disorder were less likely to rely on strategies such as putting things in perspective when faced with negative life events (Green et al., 2011). Reliance on the strategy of rumination also appears to differentiate individuals with bipolar disorder from those with depression. Specifically, whereas individuals with bipolar disorder and major depressive disorder have demonstrated heightened rumination in response to negative affect, only individuals with bipolar disorder have demonstrated heightened rumination in response to positive affect (Johnson, McKenzie, & McMurrich, 2008). As compared to healthy controls, individuals with bipolar disorder report more frequent use of rumination, catastrophizing, and self-blame and less frequent use of positive reappraisal, and putting into perspective (Wolkenstein, Zwick, Hautzinger, & Joormann, 2014). Further, individuals with bipolar disorder used spontaneous suppression and reappraisal more frequently than healthy controls when

watching neutral, happy, and sad films (Gruber, Harvey, & Gross, 2012). Cognitively, individuals with bipolar disorder tend to score higher on extreme positive and negative appraisals of internal state (Mansell et al., 2011) and interpret activated, energetic internal states in extremely positive and extremely negative ways (Kelly et al., 2011). Results suggest that individuals with bipolar disorder tend to engage in extreme appraisals of mood states, which has prompted treatment modalities focused on cognitive reappraisals in bipolar disorder (Mansell, Morrison, Reid, Lowens, & Tai, 2007). These findings highlight the tendency for individuals with bipolar disorder to rely on maladaptive strategies of emotion regulation.

This tendency to use maladaptive strategies may be due to deficient adaptive emotion regulation abilities in bipolar disorder. As compared to healthy controls, individuals with bipolar disorder reported greater effort but less success while regulating their emotions during a film watching task (Gruber, Harvey, & Gross, 2012). This finding suggests that, despite a sustained effort to regulate emotions, individuals with bipolar disorder have deficits in their ability to successfully regulate emotions. When compared to individuals with depression and anxiety, euthymic individuals with bipolar disorder demonstrated better emotion regulation abilities in the domains of emotional awareness, acceptance of emotions, and understanding of emotions (Becerra et al., 2013). However, the bipolar sample had similar emotion regulation abilities to the clinical groups in the domains of engagement in goal directed behavior, impulse control, and access to emotion regulation strategies. Additionally, in a non-clinical sample, lack of ability to use disabling counterexamples predicted endorsement of extreme appraisals, as measured by the Hypomanic Attitudes and Positive Predictions Inventory (HAPPI; Haigh & Dodd, 2017). Given the HAPPI's strong association with bipolar disorder (Alatiq, Crane, Williams, & Goodwin,

2010; Mansell et al., 2011), it is possible that the extreme appraisals present in bipolar disorder are due, at least in part, to a diminished ability to use disabling counterexamples.

Regarding clinical implications, emotion regulation is an important area of clinical focus. Indeed, numerous therapies for bipolar disorder have focused on targeting emotion regulation strategies. Cognitive Behavioral Therapy (CBT) focuses on cognitive reappraisals (Basco & Rush, 2005), a strategy which has demonstrated effective reductions in emotion reactivity among individuals with bipolar disorder (Gruber, Hay, & Gross, 2014). Acceptance and Commitment Therapy (ACT) targets the strategies of mindfulness, acceptance, and decreased experiential avoidance (Hayes, Strosahl, & Wilson, 1999), while Dialectical Behavioral Therapy (DBT) emphasizes distress tolerance and mindfulness (Linehan, 1987; Van Dijk, Jeffrey, & Katz, 2013). The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders includes modules specifically focused on emotion regulation, such as the modules on reappraisal, mindfulness, and preventing behavioral and emotional avoidance (Barlow et al., 2017). Finally, targeting appraisals and empowering individuals with bipolar disorder to feel empowered to regulate their emotions may facilitate recovery from the disorder (Dodd, Mezes, Lobban, & Jones, 2017).

Ecological Momentary Assessment

A promising method for examining emotion regulation's relationship with positive affect and bipolar disorder is through Ecological Momentary Assessment (EMA), a method closely related to daily diary assessment, experience sampling, or ambulatory assessment. EMA involves repeated collection of data in real-time while participants engage in their natural surroundings (Shiffman, Stone, & Hufford, 2008; Stone, Shiffman, Atienza, & Nebeling, 2007). EMA typically involves prompting the participant to complete a survey multiple times a day at either pre-selected times or at random times. EMA offers many advantages over other methods,

including increased ecological validity, decreased concerns of recall bias, an abundance of naturalistic longitudinal data, and increased within-subjects sample size (Stone & Shiffman, 1994; Shiffman et al., 2008).

Despite the strengths of this methodology, few studies have explored emotion regulation via EMA, and even fewer studies have examined the interaction between emotion regulation, positive affect, and bipolar disorder via EMA. One such study explored the influence of mindfulness, cognitive reappraisal, and emotion suppression on daily negative and positive affect in a sample of healthy individuals (Brockman, Ciarrochi, Parker, & Kashdan, 2017) and found that mindfulness was associated with lower negative and higher positive affect. In contrast, emotion suppression was associated with higher negative and lower positive affect, while cognitive reappraisal was associated with positive affect only. In a similar examination of healthy individuals, the use of six emotion regulation strategies (i.e., reflection, reappraisal, rumination, distraction, expressive suppression, social sharing) on daily affect was examined (Brans, Koval, Verduyn, Lim, & Kuppens, 2013). Distraction was found to be the most commonly used strategy, and it, as well as reflection, reappraisal, and social sharing was associated with increases in positive affect. In contrast, suppression and rumination were associated with decreases in positive affect. Another EMA study examined emotion regulation in a sample of healthy controls, individuals with bipolar disorder, and individuals with depression (Gruber, Kogan, Mennin, & Murray, 2013). Results indicated that individuals with bipolar disorder experience greater positive emotionality than those with depression, but they experience the same levels of positive emotionality as controls. Both clinical groups reported greater use of emotion regulation strategies (i.e., reappraisal, calming, suppression, distraction) than healthy controls, suggesting that mood disorders involve increased emotion regulation efforts. Finally,

EMA has highlighted the importance of context in the use of emotion regulation strategies, as described in the strategy-situation-fit hypothesis (Conway & Terry, 1992). In an EMA analysis of cognitive reappraisal among healthy individuals, participants with greater well-being were found to use reappraisal more in situations low in controllability and less in situations high in controllability (Haines et al., 2016).

Present Study

There are several major gaps in the current literature exploring emotion regulation and positive affect, including how these two components influence psychopathology such as bipolar disorder. Specifically, few studies have assessed their relationship, as a majority of the literature has focused on negative affect. Further, no studies have examined the relationship using lower-level positive affect facets. Previous research has highlighted the existence of facet level positive affect and suggested that the facets have differential relationships with psychopathology (Dornbach-Bender et al., 2020; Stanton et al., 2016; Stanton & Watson, 2015). However, the relationship between each positive affect facet and emotion regulation is unclear. Further, the impact that any such potential relationship has on psychopathology has yet to be explored.

Additionally, few studies have examined relationship between emotion regulation and positive affect using EMA methods. Positive affect is known to fluctuate throughout the day according to circadian rhythms (Clark, Watson, & Leeka, 1989). Further, affect can be influenced by a multitude of daily events, including the use of emotion regulation strategies (e.g., Folkman & Moskowitz, 2000; Gross & John, 2003). Situational factors (e.g., controllability) additionally influence the use of emotion regulation strategies (Conway & Terry, 1992; Haines et al., 2016). EMA methods are therefore necessary to capture the nuances of daily affect and emotion regulation.

Finally, even fewer studies have examined this relationship in a bipolar disorder or bipolar-vulnerable sample. Individuals with and at risk for bipolar disorder experience dysregulated positive affect (Gruber 2011b; Henry et al., 2008; Johnson et al., 2005). They further have a tendency to rely on certain emotion regulation strategies while neglecting other strategies (Green et al., 2011). However, how positive affect and emotion regulation interact in the daily lives of individuals at risk for bipolar disorder has yet to be researched.

The present study therefore aimed to address these gaps in the literature by examining emotion regulation and positive affect in an undergraduate sample via EMA. Participants completed questionnaires regarding trait emotion regulation as well as daily affect and state emotion regulation. Daily measures were completed three times a day for seven days. Consistent with Naragon-Gainey and colleagues' (2017) meta-analysis of emotion regulation, the present study examined emotion regulation strategies from each of the three factors of emotion regulation (i.e., Disengagement, Aversive Cognitive Preservation, Adaptive Engagement). In addition to being supported by the literature, the strategies contained within each of these factors adequately represent the variety of adaptive and maladaptive strategies that have been extensively researched (Aldao et al., 2010; Gross, 1998; Kring & Sloan, 2010; Nolen-Hoeksema & Watkins, 2011).

By utilizing such a design, the present study involved several innovations. First, the assessment of specific positive affect facets, not just overall positive affect, helped address a significant gap in the literature. Second, the use of EMA to collect data at multiple time points in the participant's natural surroundings provided greater insight into how affect regulation occurs in daily life. Third, by exploring the relationship between bipolar disorder risk, emotion regulation, and positive affect facets, this study aimed to help clarify the role that emotion

regulation and positive affect facets play in the development and course of bipolar disorder, as this may lead to future targets for clinical interventions.

Research Aims and Hypotheses

Aim 1 of the study was to explore the relationship between baseline, trait emotion regulation and daily positive affect facets. It was hypothesized that greater trait emotion regulation tendencies (e.g., trait-level frequency of reappraisal as a means of emotion regulation, trait-level tendency to engage in mindful behaviors) at baseline would be associated with higher levels of daily positive affect. Further, it was hypothesized that greater trait emotion regulation at baseline, as assessed by a suite of emotion regulation measures, would be associated with higher daily levels of adaptive positive affect facets (i.e., serenity) compared to more maladaptive positive affect facets (i.e., joviality, self-assurance).

Aim 2 was similar to the first, but it focused on positive affect and emotion regulation *as they occur in daily life* through EMA. Therefore, the second aim was to assess the link between daily use of emotion regulation strategies and daily levels of positive affect facets. The literature indicates that certain strategies (i.e., mindfulness, savoring, reappraisal, distraction, reflection, social sharing) are associated with higher levels of positive affect (Andreotti et al., 2013; Augustine, & Hemenover, 2009; Brans et al., 2013; Brockman et al., 2017; Folkman & Moskowitz, 2000; Garland et al., 2009; Garland et al., 2015; Quoidbach et al., 2010; Reich et al., 2010). In contrast, other strategies (i.e., withdrawal, experiential avoidance, suppression, rumination) are associated with diminished positive affect (Brans et al., 2013; Brockman et al., 2017; Kashdan et al., 2006). However, few studies have examined the relationship between these strategies and daily positive affect using EMA. Consistent with the literature, it was hypothesized that greater daily use of mindfulness, savoring, reappraisal, distraction, reflection,

and social sharing would be associated with higher daily levels of adaptive positive affect facets (i.e., Serenity) while greater daily use of withdrawal, experiential avoidance, suppression, and rumination would be associated with higher daily levels of maladaptive positive affect facets (i.e., joviality, self-assurance).

Finally, Aim 3 was to explore whether risk for bipolar disorder moderates the relationships tested in Aims 1 and 2. Specifically, it was hypothesized that elevated risk for bipolar disorder, as assessed by the Hypomanic Personality Scale (HPS) and the Behavioral Inhibition System/ Behavioral Activation System (BIS/BAS) Scale, would be associated with elevated daily positive affect, particularly maladaptive facets of joviality and self-assurance.

CHAPTER 2

METHODS

Participants

Participants (N = 155) were recruited from Sona Systems, an online research participation pool for undergraduate students enrolled in psychology classes. These participants received course credit via Sona Systems in exchange for participation in the study. Inclusion criteria was being over age 18 and English-speaking. As presented in Table 1, participants were 78.1% female, 36.8% white, 25.2% African-American, 28.4% Hispanic, 14.8% Asian, and 18.7% other or multiracial, and ranged in age from 18 to 52 years (M = 20.02, SD = 3.33). Participant demographics largely reflected demographics of students at this university, where the student population was 52% females; age ranged primarily from 18 to 25; and racial demographics were approximately 45% white, 13% African-American, 24% Hispanic, 6% Asian, and 11% other or multiracial (US Department of Education, 2020). HPS scores (i.e., a marker of risk for bipolar disorder) ranged from 12 to 44 (of a possible 1 – 48), with a mean HPS score of 26.26 (SD = 6.36). However, only ten participants (6.2% of sample) scored at or above 36 on the HPS, a cutoff indicating high risk for bipolar disorder (Kwapil et al., 2000).

Procedures

Informed consent was obtained from all participants via the Qualtrics online platform prior to participation in the study. If participants agreed to participate in the study, they completed the online baseline self-report measures. Completion of these measures took approximately 60 minutes. All participants were asked to provide their typical wake and bed times. These times were then used to select specific times during which they would complete the EMA measures. These times were selected to correspond to a participant's usual waking time,

midday break, and bedtime. All participants then received an email notification at the specified times, three times a day for seven days, prompting them to complete the EMA measures via Qualtrics.

Due to the COVID-19 pandemic, procedures for the study had to be altered on March 15, 2020. Prior to that date, participants completed an in-person baseline visit during which they completed the online baseline self-report measures as well as a training and practice session regarding how to complete the EMA measures. After March 15, 2020, all study procedures were shifted to be in compliance with recommended social distancing measures. Therefore, participants continued to complete the baseline assessments online, but they were trained on the EMA portion of the study over the phone. Participants were notified that they would be contacted via phone by the researcher at 5pm on the evening they completed the baseline assessments. During the phone call, participants were provided opportunity to ask questions about the study and were trained on the EMA procedures. As shown in Table 2, 61.90% of participants were trained in the EMA portion of the study prior to March 15, 2020 (i.e., trained in-person). After that date, 27.70% of participants were trained over the phone (i.e., live contact was established). For 10.30% of participants, live contact was unable to be established, but a detailed voicemail was left outlining the EMA instructions. As noted in the results section below, contact method did not significantly impact EMA response rate.

Baseline Only Measures

Acceptance and Action Questionnaire-II

The Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011) measures trait experiential avoidance and psychological inflexibility across seven items that are rated on a 7-point Likert-scale ranging from 1 (*never true*) to 7 (*always true*). Sample items include "I'm

afraid of my feelings" and "Emotions cause problems in my life." The AAQ-II has demonstrated adequate internal consistency (α = .78 to .88) and test-retest reliability across 3 months (r = .81) and across one year (r = .79; Bond et al., 2011). In the current sample, internal consistency was high (Cronbach's α = .90).

Cognitive Behavioral Avoidance Scale

The Cognitive Behavioral Avoidance Scale (CBAS; Ottenbreit & Dobson, 2004) is a 31-item self-report measure that assesses cognitive avoidance and behavioral avoidance of distressing emotional experiences. Participants are asked to respond based on their general behavioral patterns, and items are rated on a 5-point Likert scale ranging from 1 (*not at all true for me*) to 5 (*extremely true for me*). Sample items include "I tend to make up excuses to get out of social activities" and "I quit activities that challenge me too much." The CBAS produces four scales: Behavioral Social, Behavioral Nonsocial, Cognitive Social, and Cognitive Nonsocial. The four scales have demonstrated adequate internal consistency (Cronbach's α = .75 to .86). The measure has also demonstrated adequate test-retest reliability across three weeks (r = .86 to .94) for all scales except the Cognitive Social scale (r = .58). In the present study, the Behavioral Social scale demonstrated a Cronbach's α of .87, the Behavioral Nonsocial scale demonstrated a Cronbach's α of .78, the Cognitive Social scale demonstrated a Cronbach's α of .75, and the Cognitive Nonsocial scale demonstrated a Cronbach's α of .86.

Emotion Regulation Questionnaire

The emotion regulation strategies of reappraisal and expressive suppression were assessed with the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The 10-items in this measure are rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Items include "When I want to feel more positive emotion (such as joy or

amusement), I change what I'm thinking about" and "I control my emotions by not expressing them." The ERQ produces two subscales: cognitive reappraisal and expressive suppression. The reappraisal scale has demonstrated adequate internal consistency (Cronbach's α = .75 to .82) and test-retest reliability across 3 months (r = .69) while the expressive suppression scale has demonstrated adequate internal consistency (Cronbach's α = .68 to .76) and test-retest reliability across 3 months (r = .69; Gross & John, 2003). The current study found adequate internal consistency for both the cognitive reappraisal (Cronbach's α = .84) and the expressive suppression scale (Cronbach's α = .77).

Mindful Attention Awareness Scale

The Mindful Attention Awareness Scale (MAAS) is a 15-item measure assessing one's tendency to engage in mindful behaviors (Brown & Ryan, 2003). Responses are rated on a 6-point Likert scale ranging from 1 (*almost always*) to 6 (*almost never*). Items include "I find myself preoccupied with the future or the past" and "I do jobs or tasks automatically, without being aware of what I'm doing." It has demonstrated adequate internal consistency (α = .87) and test-retest reliability across four weeks (r = .81; Brown & Ryan, 2003). In the current sample, high internal consistency was found (Cronbach's α = .89).

Ruminative Responses Scale

Rumination was assessed via the Ruminative Responses Scale (RRS; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). The RRS is a 22-item self-report that assesses rumination on a 4-point Likert scale ranging from 1 (*almost never)* to 4 (*almost always*). The measure produces two subscales called Reflection and Brooding. Sample items include "Go away by yourself and think about why you feel this way" and "Think about a recent situation, wishing it had gone better." Although the measure was originally developed for use with depression, it has been widely used

in the emotion regulation literature (Seligowski & Orcutt, 2015). Therefore, consistent with Seligowski and Orcutt (2015), the current study used the RRS but amended the instructions to remove depressive content. The RRS has demonstrated adequate internal consistency of the Reflection subscale (α = .72) and the Brooding subscale (α = .77) in the literature (Treynor et al., 2003) as well as in the present sample (α = .79 and α = .82, respectively). Further, the measure has demonstrated adequate test-retest reliability (r = .60 and .62; Treynor et al., 2003).

Savoring Beliefs Inventory

The 24-item Savoring Beliefs Inventory (SBI; Bryant, 2003) produces three subscales of anticipating, savoring the moment, and reminiscing. Items are rated on a seven-point Likert scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). Sample items include "I can enjoy events before they occur" and "I can prolong enjoyment by my own effort." The SBI is considered a valid and reliable measure of individuals' beliefs regarding their capacity to savor positive experiences. It has demonstrated adequate reliability (r > .80 for all scales and total score) as well as adequate internal consistency (Cronbach's α > .87). In the current sample, the total score demonstrated a Cronbach's α of .87, the anticipating scale demonstrated a Cronbach's α of .78, the savoring the moment scale demonstrated a Cronbach's α of .79, and the reminiscing scale demonstrated a Cronbach's α of .81.

Hypomanic Personality Scale

The Hypomanic Personality Scale (HPS) is a self-report measure consisting of 48 true-false items such as "There are often times when I am so restless that it is impossible for me to sit still," and "I often feel excited and happy for no apparent reason" (Eckblad & Chapman, 1986). This measure is designed to assess risk for mania by measuring the episodic shifts in positive affect, energy, extraversion, and behavior that are commonly associated with mania. Research

has suggested that high scores on the HPS (i.e., above 36; Kwapil et al., 2000) are a strong predictor of future mania, with up to 78% of high scorers experiencing hypomanic episodes and 25% meeting DSM-IV criteria for bipolar disorder (Eckblad & Chapman, 1986). Further, the HPS has demonstrated high longitudinal predictability of bipolar disorder, with individuals who scored high on the HPS exhibiting greater risk for mania at a 13-year follow up assessment (Kwapil et al., 2000). Test-retest reliability ($\alpha = 0.81$) and internal consistency ($\alpha = 0.87$) for the HPS are both reported as strong (Eckblad & Chapman, 1986). Baseline internal consistency for the HPS was $\alpha = .76$ in the current sample.

Behavioral Inhibition System/ Behavioral Activation System (BIS/BAS) Scale

The BIS/BAS scale measures the behavioral inhibition system (BIS) and the behavioral activation system (BAS; Carver & White, 1994). Participants respond to 20 statements by rating their agreement on a 4 point Likert scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). The measure produces four scales, one which represents the BIS and three that represent BAS (i.e., Reward Responsiveness, Drive, and Fun Seeking). Like the HPS, the BIS/BAS has demonstrated associations with bipolar disorder. Specifically, BAS outputs show great similarity to manic symptoms (Depue & Iacono, 1989). Elevated BAS sensitivity hay be an endophenotype for bipolar disorder (Hasler, Drevets, Gould, Gottesman, & Manji, 2006), and elevated BAS sensitivity has demonstrated utility as a risk marker for bipolar disorder (Alloy et al., 2012; Meyer, Johnson, & Carver, 1999). Further, individuals with bipolar disorder demonstrate higher levels of BAS sensitivity than healthy controls (Salavert et al., 2007). The BIS/BAS has exhibited adequate validity and reliability in the BIS scale (Cronbach's $\alpha = 0.76$) and the overall BAS scale (Cronbach's $\alpha = 0.83$; Jorm et al., 1998). The BAS subscales have also demonstrated adequate internal consistencies, with Reward Responsiveness achieving a

Cronbach's α of 0.65, Drive achieving a Cronbach's α of 0.80, and Fun Seeking achieving a Cronbach's α of 0.70. In the current sample, Reward Responsiveness (M = 17.21, SD = 2.29) achieved a Cronbach's α of 0.65, Drive (M = 10.97, SD = 2.63) achieved a Cronbach's α of 0.77, and Fun Seeking (M = 12.15, SD = 2.51) achieved a Cronbach's α of 0.72).

Positive and Negative Affect Schedule, Expanded Form

The Positive and Negative Affect Schedule, Expanded Form (PANAS-X) is a 60-item self-report measure assessing positive and negative affect over the past two weeks (Watson, Clark, & Tellegen, 1988; Watson & Clark, 1994). The measure presents positive and negative affect words (e.g., afraid, happy, irritable), and participants are asked to rate the extent to which they feel each word on a scale from 1 (*very slightly or not at all*) to 5 (*extremely*). The PANAS-X yields 11 facet scales: Fear, Hostility, Guilt, Sadness, Joviality, Self-Assurance, Attentiveness, Shyness, Fatigue, Serenity, and Surprise. The PANAS-X has demonstrated adequate reliability in each of the facets across samples (Cronbach's α > .70 for all facets), and baseline internal consistencies were found to be high in the current study (α = .74 – .94).

Daily Measures

Daily Positive Affect

In the EMA portion of the study, participants were presented with 34 items from the PANAS-X. These items compose the positive affect and negative affect scales as well as the joviality, self-assurance, attentiveness, and serenity facets. Participants were asked to complete these items in regards to how they feel "right now".

Emotion Regulation Strategies

As there is no formal measure of emotion regulation in daily life, emotion regulation use

was assessed during the EMA portion of the study by using items derived from previous EMA studies. Specifically, items were derived from three previous EMA studies examining emotion regulation strategies (Brans et al., 2013; Brockman et al., 2016; McMahon & Naragon-Gainey, 2019). The emotion regulation strategies assessed included acceptance, behavioral avoidance, distraction, experiential avoidance, emotional suppression, procrastination, reappraisal, reflection, rumination, savoring, social support, substance use, and mindfulness. Following procedures outlined in Brans and colleagues (2013), participants were asked to report the extent to which they engaged in each emotion-regulation strategy during the specified EMA period (i.e., morning to midday, midday to evening). Participants were presented with single-item statements for each emotion regulation strategy and rated them on a 6-point scale from 0 (not at all) to 5 (very much so). The statements corresponded to emotion regulation strategies represented in the present study's hypotheses as well as in the clinical literature.

Data Analysis

The first study hypothesis was that greater trait emotion regulation tendencies at baseline would be associated with significantly higher daily levels of positive affect. It was also hypothesized to be associated with significantly lower levels of the facets of Joviality and Self-Assurance. To test this hypothesis, a hierarchical linear model (HLM; Osborne, 2000) was estimated. In HLM, the level 1 (i.e., within person) equation was:

$$PA_{ij} = \beta_{0j} + \varepsilon_{ij}$$

The level 2 (i.e., between person) equation was:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{trait ER}) + \mu_{0j}.$$

For the combined model, daily levels of positive affect were a linear function of average positive affect (PA) across the sample, baseline emotion regulation (ER) scores at the between person

level, and random effect terms at both levels. This combined equation was:

$$PA_{ij} = \gamma_{00} + \gamma_{01}(\text{trait ER}) + \mu_{0j} + \varepsilon_{ij}$$

A significant fixed effect coefficient for ER would support the hypothesis that greater deficits in emotion regulation abilities are associated with lower daily positive affect. The same HLM models as those above were estimated using each baseline emotion regulation measure. Further, the analyses were conducted with each positive affect facet representing the dependent variable in each model.

The second hypothesis was that greater daily use of the emotion regulation strategies of mindfulness, savoring, reappraisal, distraction, reflection, and social sharing would be associated with higher daily levels of positive affect while greater daily use of withdrawal, experiential avoidance, suppression, and rumination would be associated with diminished levels of daily positive affect. To test this hypothesis, a hierarchical linear model (HLM; Osborne, 2000) was estimated. In HLM, the level 1 (i.e., within person) equation was:

$$PA_{ij} = \beta_{0j} + \beta_{1ij}(\text{daily ER}) + \varepsilon_{ij}$$

The level 2 (i.e., between person) equation was:

$$\beta_{0j} = \gamma_{00} + \mu_{0j}$$

$$\beta_{1ij} = \gamma_{01} + \mu_{1j}$$

For the combined model, daily levels of positive affect would be a linear function of average daily positive affect (PA) across the sample, daily emotion regulation (ER) scores, and random effect terms at both levels. This combined equation was:

$$PA_{ij} = \gamma_{00} + \gamma_{01} + \mu_{0j} + \mu_{1j} + \varepsilon_{ij}$$

The same HLM models as above were estimated using each positive affect facet in place of overall positive affect.

The third hypothesis was that risk for bipolar disorder moderates the relationship between emotion regulation and positive affect. It was hypothesized that individuals with elevated HPS and BIS/BAS would have lower use of acceptance, goal-directed behavior, and access to emotion regulation strategies, and this lower use would be associated with elevated overall positive affect, Joviality, and Self-Assurance. To test this hypothesis, multilevel models were estimated, with a cross-level interaction supportive of the hypothesis. For the model utilizing baseline emotion regulation, the level 1 (i.e., within person) equation was:

$$PA_{ij} = \beta_{0j} + \varepsilon_{ij}$$

The level 2 (i.e., between person) equation included bipolar disorder risk:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{trait ER}) + \gamma_{02}(\text{BD risk}) + \gamma_{03}(\text{trait ER*BD risk}) + \mu_{0j}$$

The combined equation was written as:

$$PA_{ij} = \gamma_{00} + \gamma_{01}(\text{trait ER}) + \gamma_{02}(\text{BD risk}) + \gamma_{03}(\text{trait ER*BD risk}) + \mu_{0j} + \varepsilon_{ij}$$

For the model utilizing daily emotion regulation, the level 1 (i.e., within person) was:

$$PA_{ij} = \beta_{0j} + \beta_{1j}(\text{daily ER}) + \varepsilon_{ij}$$

The level 2 (i.e., between person) equation predicted two coefficients:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{BD risk}) + \mu_{0j}.$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{BD risk}) + \mu_{1j}.$$

The combined equation was written as:

$$PA_{ij} = \gamma_{00} + \gamma_{01}(\text{daily ER}) + \gamma_{10}\,(\text{BD risk}) + \gamma_{11}(\text{daily ER* BD risk}) +$$

$$\mu_{1j}(\text{BD risk}) + \mu_{0j} + \varepsilon_{ij}$$

The above formulas were repeated with each measure of bipolar disorder risk (i.e., HPS, BIS/BAS) as well as each positive affect facet (i.e., Serenity, Joviality, Self-Assurance, Attentiveness). The hypothesis would be supported if the fixed effect coefficient γ_{11} is

significantly greater than 0.

Using the methods outlined by Pan and McBee (2014), a power analysis for HLM was run in R prior to collecting data. Given the variance-covariance matrix in positive affect that has been found in previous EMA data (Dornbach-Bender et al., 2019), it was calculated that a minimum sample size of 150 was required to achieve 0.8 power and a medium effect size (0.20 gamma). All HLM analyses were conducted using PROC MIXED procedure in SAS® 9.4.

CHAPTER 3

RESULTS

Data Cleaning

Prior to conducting analyses, all data was examined and cleaned. Response validity checks were conducted and variable scores were examined for outliers, normality, and other primary test assumptions. At baseline, 228 participants were recruited and completed assessments. However, 9 participants were removed for completing the baseline surveys at an atypically fast pace (i.e., under 600 seconds) and 7 participants were removed for overuse of the same response option. After checking for these validity indexes, a baseline sample of 212 participants remained.

Upon cleaning the EMA data, it was found that 23 participants failed to complete any EMA surveys while another 34 subjects were excluded because they completed fewer than 9 of the 21 daily surveys. After removing these subjects, 155 subjects remained and were considered the final analysis sample. Independent samples t-tests were conducted to determine if there were significant differences between the participants who were retained (n = 155*)* and the participants who were excluded (n = 57). The results indicated that there were no significant differences between those analyzed and those who were excluded across a series of key variables. Specifically, there were no group difference in baseline positive affect ($t(210) = .02$, $p = .983$), negative affect ($t(83.35) = 1.34$, $p = .184$), HPS ($t(210) = .79$, $p = .433$), BAS Drive ($t(210) = 1.04$, $p = .299$), BAS Fun Seeking ($t(210) = .06$, $p = .956$), BAS Reward Responsiveness ($t(210) = -.04$, $p = .970$), or age ($t(210) = .74$, $p = .460$). Similarly, results from chi-square analyses indicated there were no significant differences between participant groups based on gender (Pearson $\chi^2(2, N = 212) = 1.40$, $p = .496$), race (Pearson $\chi^2(7, N = 212) = 3.01$, $p = .884$), or

ethnicity (Pearson $\chi^2(2, N = 212) = 1.82, p = .403$).

To clean the EMA data, cases in which the survey was completed in under 45 seconds were removed. Then, instances in which a subject completed 2 or more EMA surveys within 2 hours of each other were flagged for review. Upon reviewing these cases, comment box responses were checked to determine if participants noted a reason for completing surveys within close proximity (e.g., “This survey reflects how I felt at the time it was meant to be taken”; “I forgot to click submit when I finished it at 3pm”; “I don’t remember if I did the survey already, if I did disregard this one”; “This survey is for the evening of 2/18 but I'm doing it late because I ended up falling asleep a bit earlier and woke up after the time”). If no comment was provided, surveys completed most closely to the appropriate completion time were retained and any duplicates removed. After cleaning the EMA data accordingly, a sample of 2,690 daily surveys remained.

Effects of EMA Training Method on Response Rate

A one-way ANOVA was conducted to determine whether the method of EMA training (i.e., in-person, phone live contact, no live contact) significantly affected the rate of EMA survey completion. Of participants retained in the final sample, the number of completed EMA surveys did not vary significantly across EMA training method, $F(2, 152) = .583$, $p = .559$. Levene’s test was not statistically significant, suggesting that homogeneity of variances could be assumed (Levene’s $F(2, 152) = 1.60$, $p = .205$). Findings indicate that, for participants retained after data cleaning, method of EMA training did not significantly impact EMA response rate.

Effects of Emotion Regulation on Daily Affect

Baseline Emotion Regulation Effects

Table 4 presents results for the effect of *baseline* emotion regulation on daily affect.

Given the large number of analyses run, familywise error was a concern. For these and all subsequent results, only findings with a $p < .01$ were interpreted, with emphasis given to interpreting effect sizes rather than significance. Daily overall positive affect levels were found to be a significant function of baseline AAQ ($\beta = -.150$, $p = .019$), ERQ Expressive Suppression ($\beta = -.171$, $p = .007$), RRS Total ($\beta = -.174$, $p = .006$), CBAS Behavioral Social ($\beta = -.175$, $p = .006$), CBAS Behavioral Non-Social ($\beta = -.162$, $p = .011$), and MAAS ($\beta = .165$, $p = .010$).

Overall negative affect levels were found to be a function of all baseline emotion regulation tendencies except for ERQ Expressive Suppression and ERQ Cognitive Reappraisal. The most significant effects were found with baseline AAQ ($\beta = .234$, $p < .001$), RRS Total ($\beta = .201$, $p < .001$), RRS Brooding ($\beta = .221$, $p < .001$), SBI Total ($\beta = -.203$, $p < .001$), and MAAS ($\beta = --.221$, $p < .001$).

Effects on positive affect facets are summarized in Table 5, with the strongest effects reported here. Daily Serenity levels were found to be a significant function of baseline AAQ ($\beta = -.206$, $p < .001$). Daily Joviality levels were found to be a significant function of baseline AAQ ($\beta = -.193$, $p = .001$), RRS total ($\beta = -.198$, $p = .001$), and CBAS behavioral social ($\beta = -.206$, $p < .001$). None of the baseline emotion regulation scales predicted daily levels of the Self-Assurance facet below a $p \leq .001$ level. Attentiveness daily levels were not a significant function of baseline emotion regulation below a $p \leq .01$ level).

Daily Emotion Regulation Effects

The relationship between daily emotion regulation and overall daily positive/ negative affect is presented in Table 6. Daily overall positive affect levels were found to be a significant (i.e., $p \leq .01$) function of daily Mindfulness ($\beta = .096$, $p < .001$), Reappraisal ($\beta = .252$, $p < .001$), Rumination ($\beta = -.056$, $p = .001$), Acceptance ($\beta = .250$, $p < .001$), Experiential Avoidance ($\beta =$

.106, $p < .001$), Procrastination (β = -.072, $p < .001$), Reflection (β = .193, $p < .001$), Savoring (β = .238, $p < .001$), and Social Support (β = .112, $p < .001$).

Overall negative affect levels were found to be a significant (i.e., $p \leq .01$) function of daily Mindfulness (β = -.223, $p < .001$), Suppression (β = .207, $p < .001$), Rumination (β = .348, $p < .001$), Behavioral Avoidance (β = .069, $p < .001$), Distraction (β = .122, $p < .001$), Procrastination (β = .120, $p < .001$), Reflection (β = -.088, $p < .001$), Savoring (β = -.110, $p < .001$), and Substance Use (β = .105, $p < .001$).

Results from HLM analyses exploring the relationship between daily emotion regulation and daily positive affect facets are presented in Table 7. Strongest effects were present across all four facets for Reappraisal (Serenity β = .234, $p < .001$, Joviality β = .262, $p < .001$, Self-Assurance β = .240, $p < .001$, Attentiveness β = .225, $p < .001$), Acceptance (Serenity β = .259, $p < .001$, Joviality β = .275, $p < .001$, Self-Assurance β = .227, $p < .001$, Attentiveness β = .226, $p < .001$), Reflection (Serenity β = .189, $p < .001$, Joviality β = .192, $p < .001$, Self-Assurance β = .177, $p < .001$, Attentiveness β = .184, $p < .001$), Savoring (Serenity β = .194, $p < .001$, Joviality β = .270, $p < .001$, Self-Assurance β = .194, $p < .001$, Attentiveness β = .193, $p < .001$), and, to a lesser extent, Mindfulness (Serenity β = .174, $p < .001$, Joviality β = .130, $p < .001$, Self-Assurance β = .093, $p < .001$, Attentiveness β = .062, $p = .001$) and Social Support (Serenity β = .089, $p < .001$, Joviality β = .112, $p < .001$, Self-Assurance β = .119, $p < .001$, Attentiveness β = .102, $p < .001$).

Daily Serenity and Joviality levels were found to be a significant (i.e., $p \leq .001$) *negative* function of daily Suppression (Serenity β = -.107, $p < .001$; Joviality β = -.087, $p < .001$) and Rumination (Serenity β = -.141, $p < .001$; Joviality β = -.127, $p < .001$). Negative effects were also present across all four facets for Procrastination (Serenity β = -.058, $p = .002$, Joviality β = -

.062, $p < .001$, Self-Assurance β = -.050, $p = .001$, Attentiveness β = -.064, $p < .001$).

Moderating Effects from Bipolar Disorder Risk

Moderation of Baseline Emotion Regulation Effects

HLM analyses were also conducted to explore the role of bipolar disorder risk as a potential moderator between baseline emotion regulation and daily overall affect. As presented in Tables 8 – 11, there were no significant interaction effects between baseline HPS and emotion regulation for both positive affect (β = -.094 to .123, $p = .070$ to .895) and negative affect (β = -.086 to .091, $p = .106$ to .939). The only significant interaction effect between baseline BAS scales (i.e., Drive, Fun Seeking, Reward Responsiveness) and emotion regulation for positive affect occurred between BAS Reward Responsiveness and AAQ Total (β = .120, $p = .026$). All other interaction effects for positive affect were not significant (β = -.071 to .115, $p = .073$ to .983). When examining the relationship with negative affect, BAS Drive was found to significantly interact with SBI Total (β = -.140, $p = .008$) and SBI Anticipating (β = -.110, $p = .031$). All other interaction effects between baseline BAS scales (i.e., Drive, Fun Seeking, Reward Responsiveness) and emotion regulation for negative affect were not significant (β = -.099 to .084, $p = .070$ to .982).

Facet-level findings are presented in Tables 12 – 15. When examining Serenity, there were no significant interaction effects at a $p \leq .01$ level between either HPS and baseline emotion regulation (β = -.128 to .069, $p = .029$ to .979) or BAS scales and baseline emotion regulation (β = -.057 to .128, $p = .023$ to .989). There were no significant interaction effects for Joviality when examining HPS (β = -.069 to .107, $p = .106$ to .855) or any of the BAS scales (β = -.056 to .093, $p = .056$ to .948). There were no significant interaction effects at a $p \leq .01$ level for Self-Assurance when examining HPS (β = -.088 to .133, $p = .053$ to .949) or any of the BAS scales (β

= -.090 to .134, p = .011 to .994). Finally, there were no significant interaction effects for Attentiveness when examining HPS (β = -.099 to .101, p = .138 to .955) as well as all of the BAS scales (β = -.092 to .117, p = .075 to .984).

Moderation of Daily Emotion Regulation Effects

HLM analyses were again used to explore the role of bipolar disorder risk as a moderator between daily emotion regulation and daily overall affect. As presented in Tables 16 – 19, there were no significant interaction effects below a $p \leq .01$ level for positive affect when examining baseline HPS (β = -.037 to .056, p = .007 to .859) or any of the BAS scales (β = -.038 to .047, p = .034 to .968). The only significant interaction effect below a $p \leq .01$ level between baseline HPS and emotion regulation for positive affect occurred between HPS and Acceptance (β = .056, p = .007).

There were no significant interaction effects between baseline HPS and daily emotion regulation for negative affect (β = -.017 to .033, p = .242 to .951). There were also no significant interaction effects below a $p \leq .01$ level for any of the BAS scales (β = -.053 to .075, p = .032 to .960).

Results examining the role of bipolar disorder risk as a moderator between daily emotion regulation and positive affect facets are presented in Tables 20 – 23. Significant ($p \leq .01$) interaction effects were found between HPS and Acceptance for Self-Assurance (β = .068, p = .001) and Joviality (β = .062, p = .006). Significant ($p \leq .01$) interaction effects were also found between BAS Reward Responsiveness and Experiential Avoidance for Attentiveness (β = .065, p = .003).

There were no other significant interaction effects at a $p \leq .01$ level for Self-Assurance when examining HPS (β = -.014 to .048, p = .018 to .862) or any of the BAS scales (β = -.016 to

.038, p = .082 to .964). Similarly, there were no other significant interaction effects at a $p \leq .01$ level for Joviality when examining HPS (β = -.034 to .046, p = .055 to .828) or any of the BAS scales (β = -.037 to .047, p = .041 to .990). For Serenity, there were no significant interaction effects at a $p \leq .01$ level between either HPS and daily emotion regulation (β = -.051 to .056, p = .041 to .990) or BAS scales and daily emotion regulation (β = -.058 to .055, p = .075 to .838). Finally, there were no other significant interaction effects for Attentiveness when examining HPS (β = -.031 to .054, p = . 012 to .983) or the BAS scales (β = -.016 to .049, p = .025 to .994).

CHAPTER 4

DISCUSSION

The present study examined the relationship between emotion regulation and daily positive affect, and the degree to which bipolar disorder risk may moderate those associations. Unlike most previous work, this study had major innovations, including being the first study to explore the more nuanced lower level facets of positive affect and emotion regulation in daily life. Due to its EMA design, the study's results represent prospective effects of emotion regulation on affect rather than the more-often explored cross-sectional assessment. Thus, the present study represents a more rigorous exploration of emotion regulation and its impact on affect.

Present findings highlight the importance of daily emotion regulation use in regulating daily affect. Specifically, the strategies of reappraisal, acceptance, reflection, savoring, mindfulness, social support, experiential avoidance, suppression, rumination, and procrastination were all found to have the greatest effects. However, the present study did not support differential effects across facets or the role of bipolar disorder risk as a moderator.

Five major findings emerged from this study. First, daily emotion regulation strategies appeared to demonstrate stronger and more widespread effects across positive affect than trait emotion regulation tendencies. At the trait-level, strongest effects were found with experiential avoidance, psychological inflexibility, behavioral social avoidance, and ruminative responses. Further, these effects were strongest for the Serenity and Joviality facets. However, when examinations of daily emotion regulation were conducted, effects were stronger and present across all four facets. Daily reappraisal, acceptance, reflection, savoring, mindfulness, and social support were associated with significantly higher daily affect levels for all four facets. Other

daily emotion regulation strategies were associated with decreases in positive affect. Specifically, suppression and rumination were associated with significant decreases in Serenity and Joviality, whereas procrastination was associated with significant decreases in all four facets.

This finding suggests that, while trait-level tendency to engage in emotion regulation strategies may play a role in daily affective experiences, daily use of emotion regulation strategies has greater influence on daily affective experiences. Said another way, having a tendency to engage in emotion regulation strategies may not be as important as consistently engaging in emotion regulation strategies throughout daily life. This is consistent with the literature demonstrating that daily practice of therapy skills such as emotion regulation is linked to improved outcomes and therefore represents an important component of evidence-based treatments (Burns & Spangler, 2000; Kazantzis, Deane, & Ronan, 2000; Kazantzis et al., 2016; Mausbach, Moore, Roesch, Cardenas, & Patterson, 2010). Thus, it not enough to simply learn emotion regulation skills in therapy, but one must also consistently practice the techniques throughout one's daily life.

Second, specific regulation strategies played especially important roles in regulating daily affect. Across facets, the strongest positive effects on positive affect were found with daily reappraisal, acceptance, reflection, and savoring. Cognitive reappraisal entails actively challenging and changing dysfunctional cognitions (i.e., cognitions that are resulting in emotional distress) and is a cornerstone of cognitive therapies (e.g., Basco & Rush, 2005; Beck, Rush, Shaw, & Emery, 1979; Mansell, Morrison, Reid, Lowens, & Tai, 2007). The present findings support the use of reappraisal as a means of increasing positive affect and thereby reducing emotional distress. Further, reappraisal is an opposing process to rumination, which entails hyper-focus and excessive thinking on negative experiences and emotions, without

attempts to challenge or change one's thoughts (Aldao, Nolen-Hoeksema, & Schweizer, 2010). That effects were seen in the opposite direction for reappraisal and rumination further supports the use of reappraisal as a means of increasing positive affect. Acceptance (i.e., wiliness to experience and accept one's emotional experience without attempting to control or avoid it) is lauded by third-wave therapies such as ACT (Hayes, Folette, & Linehan, 2004; Hayes, Strosahl, & Wilson, 1999) and is supported by the present findings not only by the significant effects of acceptance, but also the strong negative effects of suppression (i.e., the unwillingness to experience and express both positive and negative emotions; Aldao et al., 2010). Similar to acceptance, reflection involves noting one's emotions. However, reflection also involves attempts to process, understand, and problem-solve one's experience (Trapnell & Campbell, 1999). Reflection may therefore be a related or underlying component of both acceptance and reappraisal. Finally, as savoring involves active attempts to prolong and/ or intensify positive emotions (Bryant, 2003), its link to increased daily positive affect is not surprising.

Still significant but less strong effects were also found across facets for the strategies of mindfulness and social support. Mindfulness entails noticing, without judgement, one's emotions and experiences in the present moment (Hayes et al., 1999). While mindfulness is closely related to acceptance, it does not involve any attempts to change or accept one's experience. Thus, the weaker effects of mindfulness on positive affect may be due to mindfulness' intentional lack of regulation attempts. Regarding social support, the EMA item used in the present study assessed whether the participant talked about their feelings with others. Thus, current results do not indicate the quality of social support received, which may therefore have resulted in more moderate effects in the daily data. At baseline, social avoidance (i.e., withdrawal, isolation) was associated with significantly decreased positive affect, suggesting that a lack of social support

has negative impacts on positive affect.

Interestingly, the daily emotion regulation strategies of behavioral avoidance, distraction, and substance use did not demonstrate significant effects across positive affect facets. In contrast to the strategies highlighted above (with the exception of social support), these three strategies represent behavioral means of regulation emotions. The pattern of effects therefore suggest that daily use of cognitive emotion regulation strategies may be more effective than daily behavioral emotion regulation strategies. However, it is important to note that baseline, trait-level behavioral means of suppressing emotions did significantly decrease positive affect across facets.

Third, the emotion regulation strategy of experiential avoidance demonstrated opposite direction of effects across time. Experiential avoidance involves attempts to avoid thoughts, feelings, sensations, and internal emotional experiences (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). As an emotion regulation strategy, it is generally considered to be maladaptive due to its association with diminished positive affect over time (Brans et al., 2013; Brockman et al., 2017; Kashdan et al., 2006). However, while experiential avoidance generally results in increased distress over the long-term, it results in decreased feelings of distress immediately after implementation (Bardeen, 2015; Hayes et al., 1996). In the present study, daily use of experiential avoidance was associated with significantly *higher* daily Joviality, Self-Assurance, and Attentiveness. Such findings are likely tapping into the short-term effects of experiential avoidance (i.e., decreased distress) rather than the long-term negative impacts on positive affect. This interpretation is supported by the pattern of effects at baseline, where trait-level experiential avoidance (as measured by the AAQ) was associated with significantly *decreased* positive affect and *increased* negative affect.

Taken together, the pattern of results supports literature findings showing that

experiential avoidance is reinforcing in the short-term due to increased positive affect, but has longer term negative implications (Bardeen, 2015; Hayes et al., 1996). Clinically, this finding is particularly relevant to treatments such as Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), which explicitly focuses on disrupting the process of experiential avoidance through emotion regulation techniques such as acceptance and mindfulness (Hayes, Pankey, Gifford, Batten, & Quiñones, 2002; Hayes & Wilson, 1994). Given current findings surrounding experiential avoidance, acceptance, and mindfulness, the present study therefore supports such treatment designs as a means of simultaneously reducing negative affect and increasing positive affect.

Fourth, despite important findings highlighted above, there was little evidence that effects were differential for one facet of positive affect over another. Previous studies have highlighted positive affect facets' differential associations with well-being and psychopathology (Dornbach-Bender et al., 2020; Stanton et al., 2016; Stanton & Watson, 2015), but the present study represents the first examination of positive affect facets and emotion regulation in daily life. The present findings suggest that various emotion regulation strategies may influence affective experiences similarly across facets. However, given the new and exploratory nature of the present study, more research is needed to further explore the relationship between emotion regulation and positive affect facets.

Fifth and finally, risk for bipolar disorder did not moderate the relationship between emotion regulation and daily positive affect facets in the present study. This finding was consistent whether examining trait or daily emotion regulation as well as whether examining bipolar risk via the HPS or BIS/BAS. This finding runs counter to literature suggesting that individuals with bipolar disorder experience emotion regulation deficits (Green et al., 2011;

Gruber, Harvey, & Gross, 2012; Johnson et al., 2008; Wolkenstein et al., 2014). It is important to note however that the current sample was non-clinical, with only ten participants demonstrating high risk status on the HPS (Kwapil et al., 2000). Therefore, null findings related to aim three are likely due to low clinical status in the current sample and low power, so should be interpreted with caution rather than concluding that no such effects exist.

Despite the major innovations and results of the present study, several limitations deserve mention. Reliance on an undergraduate student sample may have resulted in less robust effects, particularly due to the relatively low rate of bipolar disorder risk in the present sample. It is also important to note that the research design was altered midway through data collection due to the COVID-19 pandemic. Although EMA response rate did not vary significantly across training method, altering the study design may have introduced greater error into the data. Further, it is possible that pandemic-related circumstances may have impacted study findings in more subtle ways that cannot be assessed via the current data.

Given that the present study was largely exploratory, many opportunities for more directive research directions exist. For instance, the strategy-situation-fit hypothesis (Conway & Terry, 1992) suggests that the effectiveness of various emotion regulation strategies is dependent on context. Therefore, future research would benefit from exploring the specific situations in which each emotion regulation strategy is used. Further, participants' intended effects when using each emotion regulation strategy should be explored to determine if emotion regulation strategies were effectively being used to maintain, increase, or downregulate affect. There are also interesting areas of further exploration within the current dataset. The present study is unique in that its data collection occurred prior to and after the start of the COVID-19 pandemic. Therefore, future analyses using the present data should focus on examining affective and

emotion regulation differences pre- and post-pandemic. Such explorations may have important implications for emotion regulation guidelines during public health crises.

The present study provides increased insight into the relationship between emotion regulation and positive affect in daily life. Findings largely support the use of emotion regulation strategies (i.e., reappraisal, acceptance, reflection, savoring, mindfulness) emphasized in evidence-based treatments such as CBT (Basco & Rush, 2005), ACT (Hayes, Strosahl, & Wilson, 1999), DBT (Linehan, 1987; Van Dijk, Jeffrey, & Katz, 2013), and the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (Barlow et al., 2017). Findings suggest that these treatments are likely to lead to positive outcomes due to their focus on emotion regulation strategies that are associated with improved affective experiences. The present findings further suggest that daily practice of such strategies is critical in the experience of positive affect throughout the day.

Table 1

Participant Demographics

Item	Category	*n*	%
Gender	Male	33	21.30
	Female	121	78.10
	Other	1	.60
	Prefer not to answer	0	.00
Race	White	57	36.80
	Black/ African American	39	25.20
	Asian	23	14.80
	American Indian/ Alaska Native	2	1.30
	Native Hawaiian/ Pacific Islander	1	.60
	Multiracial	11	7.10
	Other	18	11.60
	Prefer not to answer	4	2.60
Ethnicity	Hispanic	44	28.40
	Non-Hispanic	109	70.30
	Prefer not to answer	2	1.30
Bipolar Risk	HPS $\geq$ 36	10	6.20

Table 2

Participant Training (Contact Method) for the EMA Portion of Study

Category	*n*	%
In Person	96	61.90
Live Phone Contact	43	27.70
Voicemail	16	10.30

Table 3

Correlations between Baseline Emotion Regulation and Positive Affect

	PA	NA	Serenity	Joviality	Self-Assurance	Attentiveness
AAQ	-.24**	.56***	-.38***	-.33***	-.21**	-.18*
ERQ Cog Reapprais.	.21**	.05	.15	.18*	.19*	.16*
ERQ Exp. Suppress.	-.14	.05	-.05	-.21**	-.15	-.03
RRS Total	-.27**	.43***	-.26**	-.37***	-.24**	-.20*
RRS Brooding	-.21**	.44***	-.24**	-.32***	-.23**	-.11
RRS Reflection	-.12	.26**	-.14	-.24**	-.07	-.08
CBAS Bx Social	-.30***	.28**	-.21*	-.33***	-.35***	-.19*
CBAS Bx Nonsocial	-.23**	.35***	-.12	-.24**	-.23**	-.19*
CBAS Cog Social	-.14	.33***	-.09	-.22**	-.12	-.05
CBAS Cog Nonsocial	-.26**	.32***	-.06	-.22**	-.16*	-.30***
SBI Total	.38***	-.34***	.35***	.43***	.35***	.27**
SBI Anticipating	.36***	-.26**	.38***	.37***	.31***	.28**
SBI Savoring	.29***	-.35***	.29**	.39***	.31***	.15
SBI Reminiscing	.22**	-.16*	.19*	.24**	.15	.17*
MAAS	.20*	-.44***	.21*	.26**	.18*	.10

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, Cog = cognitive, Exp. = expressive, Bx = behavioral. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4

HLM Results for Daily Affect and Baseline Emotion Regulation

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.011 to .021 (.06 to .07)	-.054 to .002 (.05 to .06)
AAQ	-.150 (.06)*	.234 (.06)***
ERQ Cog Reapprais.	.043 (.06)	-.073 (.06)
ERQ Exp. Suppress.	-.171 (.06)**	.046 (.06)
RRS Total	-.174 (.06)**	.201 (.01)***
RRS Brooding	-.103 (.06)	.221 (.06)***
RRS Reflection	-.072 (.06)	.157 (.06)**
CBAS Bx Social	-.175 (.06)**	.119 (.06)*
CBAS Bx Nonsocial	-.162 (.06)**	.166 (.06)**
CBAS Cog Social	-.069 (.06)	.136 (.06)*
CBAS Cog Nonsocial	-.068 (.06)	.186 (.06)**
SBI Total	.113 (.07)	-.203 (.05)***
SBI Anticipating	.089 (.07)	-.145 (.05)**
SBI Savoring	.117 (.07)	-.154 (.05)**
SBI Reminiscing	.059 (.07)	-.139 (.06)*
MAAS	.165 (.06)**	-.221 (.06)***

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, Cog = cognitive, Exp. = expressive, Bx = behavioral. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5

HLM Results for Daily Positive Affect Facets and Baseline Emotion Regulation

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.001 to .035 (.05 to .06)	-.004 to .039 (.06 to .06)	-.001 to .028 (.06 to .07)	-.021 to .004 (.06 to .06)
AAQ	-.206 (.05)***	-.193 (.06)***	-.153 (.07)*	-.094 (.06)
ERQ Cog Reapprais.	.020 (.06)	.031 (.06)	.062 (.07)	.051 (.06)
ERQ Exp. Suppress.	-.084 (.07)	-.159 (.06)**	-.167 (.07)**	-.134 (.06)*
RRS Total	-.127 (.06)*	-.198 (.06)***	-.182 (.06)**	-.136 (.06)*
RRS Brooding	-.089 (.06)	-.135 (.06)*	-.130 (.07)*	-.060 (.06)
RRS Reflection	-.050 (.06)	-.099 (.06)	-.050 (.07)	-.053 (.06)
CBAS Bx Social	-.151 (.06)**	-.206 (.06)***	-.208 (.06)**	-.114 (.06)
CBAS Bx Nonsocial	-.145 (.06)**	-.181 (.06)**	-.166 (.07)**	-.135 (.06)*
CBAS Cog Social	-.105 (.06)	-.107 (.06)	-.063 (.07)	-.043 (.06)
CBAS Cog Nonsocial	-.030 (.06)	-.082 (.06)	-.056 (.07)	-.066 (.06)
SBI Total	.143 (.05)**	.142 (.06)*	.116 (.07)	.069 (.06)
SBI Anticipating	.083 (.06)	.079 (.06)	.082 (.07)	.069 (.06)
SBI Savoring	.136 (.06)*	.149 (.06)*	.135 (.07)*	.074 (.06)
SBI Reminiscing	.172 (.05)**	.106 (.06)	.048 (.07)	.033 (.06)
MAAS	.113 (.06)*	.172 (.06)**	.179 (.06)**	.136 (.06)*

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, Cog = cognitive, Exp. = expressive, Bx = behavioral. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 6

HLM Results for Daily Affect and Daily Emotion Regulation

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.011 to -.002 (.06 to .07)	-.006 to .002 (.05 to .06)
Mindfulness	.096 (.02)***	-.223 (.02)***
Suppression	-.023 (.02)	.217 (.02)***
Reappraisal	.252 (.02)***	-.044 (.02)*
Rumination	-.060 (.02)**	.348 (.02)***
Acceptance	.250 (.02)***	-.200 (.02)
Behavioral Avoid.	.028 (.02)	.069 (.02)***
Distraction	.037 (.02)*	.122 (.01)***
Experiential Avoid.	.106 (.02)***	.019 (.02)
Procrastination	-.072 (.02)***	.120 (.02)***
Reflection	.193 (.02)***	-.088 (.02)***
Savoring	.238 (.02)***	-.110 (.02)***
Social Support	.112 (.02)***	.028 (.02)
Substance Use	.007 (.02)	.105 (.02)***

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 7

HLM Results for Daily Positive Affect Facets and Daily Emotion Regulation

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.001 to .008 (.05 to .06)	-.005 to .005 (.06)	-.001 to .008 (.06 to .07)	-.018 to -.010 (.06)
Mindfulness	.174 (.02)***	.130 (.02)***	.093 (.02)***	.062 (.02)**
Suppression	-.107 (.03)***	-.087 (.02)***	-.027 (.02)	.031 (.02)
Reappraisal	.234 (.02)***	.262 (.02)***	.240 (.02)***	.225 (.02)***
Rumination	-.141 (.02)***	-.127 (.02)***	-.038 (.02)*	-.005 (.02)
Acceptance	.259 (.02)***	.275 (.02)***	.227 (.02)***	.226 (.02)***
Behavioral Avoid.	.007 (.02)	.007 (.02)	.025 (.02)	.031 (.02)
Distraction	-.010 (.02)	.023 (.02)	.036 (.02)*	.049 (.02)**
Experiential Avoid.	.037 (.02)	.114 (.02)***	.093 (.02)***	.097 (.02)***
Procrastination	-.058 (.02)**	-.062 (.02)***	-.050 (.02)**	-.064 (.02)***
Reflection	.189 (.02)***	.192 (.02)***	.177 (.02)***	.184 (.02)***
Savoring	.194 (.02)***	.270 (.02)***	.194 (.02)***	.193 (.02)***
Social Support	.089 (.02)***	.112 (.02)***	.119 (.02)***	.102 (.02)***
Substance Use	-.020 (.02)	.022 (.02)	.048 (.02)**	.003 (.02)

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 8

HLM Results- Positive/ Negative Affect and Baseline Emotion Regulation's Interaction with HPS

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.055 to .028 (.06 to .07)	-.047 to .006 (.05 to .06)
HPS	.196 to .253 (.06 to .06)***	.127 to .220 (.05 to .06)**
AAQ	-.129 (.06)	.213 (.06)
HPS*AAQ	.118 (.07)	.016 (.06)
ERQ Cog Reapprais.	.082 (.08)	-.085 (.07)
HPS*ERQ Cog R.	.045 (.08)	.017 (.07)
ERQ Exp. Suppress.	-.172 (.07)	.060 (.06)
HPS*ERQ Exp. Sup.	-.039 (.07)	.080 (.06)
RRS Total	-.156 (.06)	.193 (.06)
HPS*RRS Total	.107 (.07)	.017 (.06)
RRS Brooding	-.113 (.07)	.180 (.06)
HPS*RRS Brooding	.058 (.07)	.049 (.06)
RRS Reflection	-.053 (.06)	.131 (.06)
HPS*RRS Reflection	.123 (.07)	-.005 (.06)
CBAS Bx Social	-.093 (.06)	.150 (.07)
HPS*CBAS Bx Soc.	.078 (.06)	.035 (.07)
CBAS Bx Nonsocial	-.116 (.07)	.112 (.07)
HPS*CBAS Bx Nons	.043 (.06)	.068 (.07)
CBAS Cog Social	-.056 (.06)	.148 (.06)
HPS*CBAS Cog S.	-.009 (.07)	.091 (.07)
CBAS Cog Nonsocial	-.056 (.07)	.199 (.06)
HPS*CBAS Cog Ns.	.075 (.08)	.026 (.07)
SBI Total	.091 (.07)	-.223 (.05)
HPS*SBI Total	-.047 (.07)	-.086 (.05)
SBI Anticipating	.058 (.07)	-.172 (.05)

(table continues)

Variables	PA β *(SE)*	NA β *(SE)*
HPS*SBI Anticipat.	-.094 (.06)	-.086 (.05)
SBI Savoring	.083 (.07)	-.185 (.05)
HPS*SBI Savoring	-.035 (.07)	-.070 (.05)
SBI Reminiscing	.073 (.06)	-.167 (.06)
HPS*SBI Reminis.	.014 (.06)	-.037 (.06)
MAAS	.142 (.07)	-.205 (.06)
HPS*MAAS	.009 (.07)	.013 (.05)

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, HPS = Hypomanic Personality Scale, Cog = cognitive, Exp. = expressive, Bx = behavioral, R = reappraisal, Ns = nonsocial, S = social. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 9

HLM Results- Positive/ Negative Affect and Baseline Emotion Regulation's Interaction with BAS Drive

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.044 to .005 (.06 to .06)	-.029 to .022 (.05 to .06)
DR	.292 to .337 (.06 to .07)***	.055 to .207 (.05 to .06)***
AAQ	-.084 (.06)	.248 (.06)
DR*AAQ	-.007 (.05)	.006 (.05)
ERQ Cog Reapprais.	.037 (.07)	-.093 (.07)
DR*ERQ Cog R.	-.051 (.06)	.050 (.06)
ERQ Exp. Suppress.	-.110 (.06)	.075 (.06)
DR*ERQ Exp. Sup.	-.055 (.06)	-.023 (.06)
RRS Total	-.102 (.06)	.238 (.06)
DR*RRS Total	.033 (.06)	-.012 (.05)
RRS Brooding	-.047 (.06)	.211 (.06)
DR*RRS Brooding	.056 (.06)	.025 (.06)

(table continues)

Variables	PA β *(SE)*	NA β *(SE)*
RRS Reflection	-.023 (.06)	.151 (.06)
DR*RRS Reflection	.048 (.06)	-.001 (.06)
CBAS Bx Social	-.047 (.05)	.166 (.07)
DR*CBAS Bx Soc.	.016 (.05)	-.010 (.06)
CBAS Bx Nonsocial	-.047 (.06)	.150 (.07)
DR*CBAS Bx Nons	.019 (.06)	.006 (.06)
CBAS Cog Social	-.021 (.06)	.160 (.06)
DR*CBAS Cog S.	.003 (.06)	-.010 (.06)
CBAS Cog Nonsocial	.029 (.06)	.233 (.06)
DR*CBAS Cog Ns.	.067 (.06)	.084 (.06)
SBI Total	.032 (.07)	-.224 (.05)
DR*SBI Total	.045 (.07)	-.140 (.05)**
SBI Anticipating	-.008 (.07)	-.192 (.05)
DR*SBI Anticipat.	-.045 (.06)	-.110 (.05)*
SBI Savoring	.034 (.07)	-.186 (.06)
DR*SBI Savoring	.038 (.06)	-.099 (.06)
SBI Reminiscing	.042 (.06)	-.182 (.06)
DR*SBI Reminis.	.070 (.06)	-.048 (.05)
MAAS	.154 (.06)	-.207 (.06)
DR*MAAS	-.007 (.06)	.020 (.06)

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, DR = BAS Drive, Cog = cognitive, Exp. = expressive, Bx = behavioral, R = reappraisal, Ns = nonsocial, S = social. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 10

HLM Results- Positive/ Negative Affect and Baseline Emotion Regulation's Interaction with BAS Fun Seeking

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.041 to .026 (.06 to .07)	-.056 to .005 (.05 to .06)
FS	.201 to .257 (.06 to .07)***	.060 to .185 (.05 to .06)**
AAQ	-.135 (.05)	.226 (.06)
FS*AAQ	.064 (.05)	-.041 (.05)
ERQ Cog Reapprais.	.052 (.07)	-.090 (.07)
FS*ERQ Cog R.	-.002 (.07)	.031 (.07)
ERQ Exp. Suppress.	-.161 (.07)	.059 (.06)
FS*ERQ Exp. Sup.	-.032 (.06)	.031 (.05)
RRS Total	-.137 (.06)	.208 (.06)
FS*RRS Total	.108 (.06)	.071 (.06)
RRS Brooding	-.051 (.06)	.198 (.06)
FS*RRS Brooding	.098 (.06)	-.003 (.06)
RRS Reflection	-.050 (.06)	.128 (.06)
FS*RRS Reflection	.085 (.06)	-.056 (.06)
CBAS Bx Social	-.088 (.06)	.152 (.07)
FS*CBAS Bx Soc.	.004 (.05)	-.033 (.06)
CBAS Bx Nonsocial	-.078 (.06)	.146 (.07)
FS*CBAS Bx Nons	.045 (.07)	-.084 (.07)
CBAS Cog Social	-.062 (.06)	.138 (.06)
FS*CBAS Cog S.	-.014 (.06)	.031 (.06)
CBAS Cog Nonsocial	-.074 (.07)	.182 (.06)
FS*CBAS Cog Ns.	.076 (.07)	.051 (.06)
SBI Total	.064 (.07)	-.227 (.05)
FS*SBI Total	.019 (.07)	-.045 (.05)

(table continues)

Variables	PA β *(SE)*	NA β *(SE)*
SBI Anticipating	.033 (.07)	-.201 (.06)
FS*SBI Anticipat.	-.028 (.08)	.043 (.06)
SBI Savoring	.068 (.07)	-.190 (.05)
FS*SBI Savoring	-.017 (.06)	-.020 (.05)
SBI Reminiscing	.061 (.07)	-.173 (.06)
FS*SBI Reminis.	.011 (.06)	-.021 (.05)
MAAS	.147 (.07)	-.209 (.06)
FS*MAAS	-.001 (.07)	.055 (.05)

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, FS = BAS Fun Seeking, Cog = cognitive, Exp. = expressive, Bx = behavioral, R = reappraisal, Ns = nonsocial, S = social. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 11

HLM Results- Positive/ Negative Affect and Baseline Emotion Regulation's Interaction with BAS Reward Responsiveness

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.043 to .040 (.06 to .07)	-.035 to .018 (.05 to .06)
RR	.038 to .141 (.06 to .07)*	-.128 to -.025 (.05 to .06)*
AAQ	-.099 (.06)	.224 (.06)
RR*AAQ	.120 (.05)*	-.075 (.05)
ERQ Cog Reapprais.	.050 (.08)	-.028 (.07)
RR*ERQ Cog R.	.032 (.08)	.025 (.07)
ERQ Exp. Suppress.	-.177 (.07)	.047 (.06)
RR*ERQ Exp. Sup.	.015 (.07)	-.055 (.06)
RRS Total	-.158 (.06)	.214 (.06)
RR*RRS Total	.099 (.07)	-.010 (.05)
RRS Brooding	-.089 (.07)	.120 (.06)

(table continues)

Variables	PA β *(SE)*	NA β *(SE)*
RR*RRS Brooding	.066 (.06)	-.033 (.06)
RRS Reflection	-.058 (.06)	.142 (.06)
RR*RRS Reflection	.079 (.06)	-.069 (.06)
CBAS Bx Social	-.128 (.06)	.086 (.07)
RR*CBAS Bx Soc.	.071 (.06)	-.044 (.07)
CBAS Bx Nonsocial	-.120 (.07)	.109 (.07)
RR*CBAS Bx Nons	.115 (.06)	-.017 (.07)
CBAS Cog Social	-.034 (.06)	.150 (.06)
RR*CBAS Cog S.	-.011 (.07)	-.085 (.06)
CBAS Cog Nonsocial	-.025 (.07)	.181 (.06)
RR*CBAS Cog Ns.	.070 (.07)	-.003 (.06)
SBI Total	.107 (.07)	-.180 (.06)
RR*SBI Total	-.056 (.08)	-.075 (.06)
SBI Anticipating	.061 (.08)	-.136 (.06)
RR*SBI Anticipat.	-.062 (.08)	-.029 (.06)
SBI Savoring	.095 (.07)	-.130 (.06)
RR*SBI Savoring	-.071 (.07)	-.090 (.06)
SBI Reminiscing	.044 (.07)	-.155 (.06)
RR*SBI Reminis.	-.006 (.06)	-.007 (.06)
MAAS	.098 (.07)	-.203 (.06)
RR*MAAS	-.049 (.07)	.076 (.06)

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, RR = BAS Reward Responsiveness, Cog = cognitive, Exp. = expressive, Bx = behavioral, R = reappraisal, Ns = nonsocial, S = social. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 12

HLM Results for Positive Affect Facets and Emotion Regulation's Interaction with HPS

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.019 to .026 (.05 to .06)	-.034 to .038 (.05 to .06)	-.047 to .029 (.06 to .07)	-.062 to .024 (.06 to .06)
HPS	.104 to .163 (.05 to .06)**	.198 to .265 (.05 to .06)***	.215 to .277 (.06 to .06)***	.164 to .202 (.06 to .06)***
AAQ	-.226 (.05)	-.201 (.05)	-.142 (.06)	-.040 (.06)
HPS*AAQ	.032 (.06)	.082 (.06)	.127 (.07)	.101 (.07)
ERQ Cog Reapprais.	.026 (.07)	.049 (.07)	.096 (.08)	.091 (.07)
HPS*ERQ Cog R.	.002 (.07)	.052 (.07)	.076 (.08)	.019 (.08)
ERQ Exp. Suppress.	-.106 (.06)	-.172 (.06)	-.167 (.07)	-.129 (.07)
HPS*ERQ Exp. Sup.	-.128 (.06)*	-.060 (.06)	-.037 (.07)	-.018 (.07)
RRS Total	-.142 (.06)	-.195 (.06)	-.164 (.06)	-.136 (.06)
HPS*RRS Total	.038 (.06)	.096 (.06)	.133 (.07)	.061 (.07)
RRS Brooding	-.115 (.06)	-.158 (.06)	-.139 (.07)	-.067 (.07)
HPS*RRS Brooding	-.017 (.06)	.043 (.06)	.088 (.07)	.028 (.06)
RRS Reflection	-.058 (.06)	-.087 (.05)	-.037 (.06)	-.041 (.06)
HPS*RRS Reflection	.069 (.07)	.107 (.07)	.128 (.08)	.081 (.07)
CBAS Bx Social	-.148 (.06)	-.127 (.05)	-.134 (.06)	-.065 (.06)
HPS*CBAS Bx Soc.	-.072 (.06)	.079 (.05)	.070 (.07)	.048 (.07)
CBAS Bx Non-social	-.141 (.06)	-.142 (.06)	-.103 (.07)	-.107 (.07)
HPS*CBAS Bx Nons	-.050 (.05)	.013 (.06)	.055 (.06)	.036 (.06)

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
CBAS Cog Social	-.150 (.06)	-.075 (.05)	-.057 (.07)	-.067 (.07)
HPS*CBAS Cog S.	-.111 (.07)	-.026 (.05)	.005 (.07)	-.004 (.07)
CBAS Cog N-social	-.026 (.05)	-.070 (.06)	-.043 (.07)	-.059 (.07)
HPS*CBAS Cog Ns.	-.013 (.06)	.034 (.06)	.062 (.08)	.098 (.08)
SBI Total	.136 (.06)	.135 (.06)	.158 (.05)	.058 (.07)
HPS*SBI Total	.047 (.06)	-.011 (.06)	-.050 (.06)	-.076 (.07)
SBI Anticipating	.067 (.06)	.038 (.06)	.045 (.07)	.060 (.07)
HPS*SBI Anticipat.	.044 (.07)	-.069 (.07)	-.088 (.08)	-.099 (.07)
SBI Savoring	.127 (.06)	.124 (.06)	.092 (.07)	.049 (.07)
HPS*SBI Savoring	.053 (.06)	-.011 (.06)	-.049 (.06)	-.030 (.07)
SBI Reminiscing	.169 (.05)	.102 (.06)	.068 (.06)	.050 (.06)
HPS*SBI Reminis.	.009 (.05)	.052 (.06)	.010 (.06)	-.029 (.06)
MAAS	.116 (.06)	.164 (.06)	.148 (.07)	.148 (.07)
HPS*MAAS	.042 (.06)	.026 (.06)	-.026 (.07)	-.026 (.07)

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, HPS = Hypomanic Personality Scale, Cog = cognitive, Exp. = expressive, Bx = behavioral, R = reappraisal, Ns = nonsocial, S = social. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 13

HLM Results for Positive Affect Facets and Emotion Regulation's Interaction with BAS Drive

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.015 to .003 (.05 to .06)	-.027 to .008 (.05 to .06)	-.040 to .011 (.06 to .07)	-.036 to .008 (.06 to .06)
DR	.115 to .178 (.05 to .06)**	.242 to .304 (.05 to .06)***	.310 to .367 (.06 to .07)***	.264 to .315 (.06 to .06)***
AAQ	-.198 (.05)	-.159 (.05)	-.098 (.06)	-.021 (.06)
DR*AAQ	-.042 (.05)	-.010 (.04)	-.017 (.05)	.024 (.05)
ERQ Cog Reapprais.	.017 (.07)	.018 (.06)	.056 (.07)	.046 (.06)
DR*ERQ Cog R.	-.040 (.06)	-.013 (.06)	-.033 (.06)	-.092 (.06)
ERQ Exp. Suppress.	-.047 (.06)	-.114 (.06)	-.102 (.07)	-.074 (.06)
DR*ERQ Exp. Sup.	-.043 (.05)	-.042 (.05)	-.073 (.06)	-.040 (.06)
RRS Total	-.106 (.06)	-.135 (.05)	-.114 (.06)	-.079 (.06)
DR*RRS Total	.009 (.05)	.054 (.05)	.020 (.06)	.030 (.06)
RRS Brooding	-.070 (.06)	-.091 (.05)	-.079 (.06)	-.006 (.06)
DR*RRS Brooding	-.021 (.05)	.052 (.05)	.046 (.06)	.053 (.06)
RRS Reflection	-.041 (.06)	-.055 (.05)	-.002 (.06)	-.015 (.06)
DR*RRS Reflection	.066 (.06)	.072 (.05)	.061 (.06)	.014 (.06)
CBAS Bx Social	-.109 (.06)	-.123 (.05)	-.088 (.06)	.065 (.05)
DR*CBAS Bx Soc.	-.041 (.05)	-.012 (.05)	-.006 (.05)	.069 (.05)
CBAS Bx Non-social	-.111 (.06)	-.088 (.06)	-.045 (.06)	-.030 (.06)
DR*CBAS Bx Nons	-.035 (.06)	.021 (.06)	-.006 (.06)	.059 (.06)

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
CBAS Cog Social	-.111 (.06)	-.061 (.05)	-.023 (.06)	-.024 (.06)
DR*CBAS Cog S.	-.039 (.06)	-.015 (.05)	.010 (.06)	.045 (.06)
CBAS Cog N-social	.009 (.06)	-.000 (.05)	.040 (.06)	.019 (.06)
DR*CBAS Cog Ns.	-.001 (.06)	.056 (.05)	.051 (.06)	.095 (.06)
SBI Total	.105 (.06)	.082 (.06)	.089 (.06)	.002 (.07)
DR*SBI Total	.111 (.06)*	.075 (.06)	.007 (.06)	.001 (.07)
SBI Anticipating	.026 (.06)	-.012 (.06)	-.024 (.07)	-.007 (.07)
DR*SBI Anticipat.	.043 (.05)	-.014 (.06)	-.045 (.06)	-.064 (.06)
SBI Savoring	.083 (.06)	.082 (.06)	.042 (.06)	.005 (.06)
DR*SBI Savoring	.128 (.06)*	.060 (.05)	.034 (.06)	.011 (.06)
SBI Reminiscing	.176 (.05)	.094 (.06)	.036 (.06)	.011 (.06)
DR*SBI Reminis.	.065 (.05)	.085 (.05)	.081 (.06)	.037 (.05)
MAAS	.120 (.06)	.165 (.06)	.172 (.06)	.117 (.06)
DR*MAAS	-.007 (.06)	-.126 (.06)	.013 (.07)	-.032 (.06)

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, DR = BAS Drive, Cog = cognitive, Exp. = expressive, Bx = behavioral, R = reappraisal, Ns = nonsocial, S = social. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 14

HLM Results for Positive Affect Facets and Emotion Regulation's Interaction with BAS Fun Seeking

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.019 to .038 (.05 to .06)	-.025 to .038 (.05 to .06)	-.029 to .028 (.06 to .07)	-.053 to .022 (.06 to .06)
FS	.106 to .162 (.05 to .06)**	.161 to .239 (.06 to .06)***	.230 to .297 (.06 to .07)***	.159 to .191 (.06 to .07)***
AAQ	-.220 (.05)	-.206 (.05)	-.151 (.06)	-.076 (.06)
FS*AAQ	-.000 (.05)	.037 (.05)	.045 (.06)	.050 (.06)
ERQ Cog Reapprais.	.009 (.07)	.027 (.07)	.059 (.08)	.067 (.07)
FS*ERQ Cog R.	-.043 (.06)	.018 (.07)	-.002 (.07)	-.050 (.07)
ERQ Exp. Suppress.	-.072 (.06)	-.160 (.06)	-.156 (.07)	-.121 (.07)
FS*ERQ Exp. Sup.	-.038 (.05)	-.041 (.05)	-.051 (.07)	-.004 (.06)
RRS Total	-.125 (.06)	-.179 (.05)	-.156 (.06)	-.156 (.06)
FS*RRS Total	.101 (.06)	.090 (.06)	.106 (.06)	.080 (.06)
RRS Brooding	-.067 (.05)	-.100 (.06)	-.073 (.06)	-.020 (.06)
FS*RRS Brooding	.087 (.05)	.085 (.05)	.118 (.06)*	.072 (.06)
RRS Reflection	-.052 (.06)	-.085 (.05)	-.038 (.06)	-.035 (.06)
FS*RRS Reflection	.123 (.06)*	.079 (.05)	.076 (.06)	.065 (.06)
CBAS Bx Social	-.124 (.06)	-.152 (.06)	-.112 (.06)	-.048 (.06)
FS*CBAS Bx Soc.	-.057 (.05)	-.015 (.05)	.000 (.06)	.018 (.06)
CBAS Bx Non-social	-.117 (.06)	-.112 (.06)	-.062 (.06)	-.081 (.07)
FS*CBAS Bx Nons	.027 (.06)	.043 (.06)	.037 (.07)	.020 (.07)

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
CBAS Cog Social	-.148 (.06)	-.085 (.05)	-.066 (.06)	-.070 (.06)
FS*CBAS Cog S.	-.055 (.06)	-.048 (.05)	-.010 (.07)	.025 (.07)
CBAS Cog N-social	-.044 (.06)	-.088 (.06)	-.068 (.07)	-.071 (.07)
FS*CBAS Cog Ns.	.008 (.06)	.013 (.06)	.063 (.07)	.099 (.07)
SBI Total	.131 (.06)	.112 (.06)	.084 (.07)	.044 (.07)
FS*SBI Total	.013 (.06)	.025 (.06)	.025 (.07)	-.011 (.07)
SBI Anticipating	.049 (.06)	.030 (.06)	.018 (.07)	.043 (.07)
FS*SBI Anticipat.	-.012 (.06)	-.055 (.07)	-.009 (.08)	-.049 (.08)
SBI Savoring	.113 (.06)	.117 (.06)	.074 (.07)	.041 (.07)
FS*SBI Savoring	-.024 (.06)	-.004 (.06)	-.013 (.06)	-.015 (.06)
SBI Reminiscing	.164 (.05)	.098 (.06)	.050 (.06)	.032 (.06)
FS*SBI Reminis.	-.007 (.05)	.029 (.05)	.030 (.05)	-.022 (.06)
MAAS	.121 (.06)	.166 (.06)	.159 (.07)	.115 (.07)
FS*MAAS	-.007 (.06)	.018 (.06)	-.006 (.07)	.002 (.06)

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, FS = BAS Fun Seeking, Cog = cognitive, Exp. = expressive, Bx = behavioral, R = reappraisal, Ns = nonsocial, S = social. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 15

HLM Results for Positive Affect Facets and Emotion Regulation's Interaction with BAS Reward Responsiveness

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.015 to .010 (.05 to .06)	-.031 to .049 (.06 to .06)	-.032 to .049 (.06 to .07)	-.046 to .034 (.06 to .07)
RR	.075 to .149 (.05 to .06)**	.050 to .159 (.06 to .07)**	.046 to .162 (.06 to .08)*	.035 to .113 (.06 to .07)***
AAQ	-.206 (.05)	-.171 (.05)	-.099 (.05)	-.058 (.06)
RR*AAQ	.031 (.05)	.093 (.05)	.134 (.05)*	.099 (.06)
ERQ Cog Reapprais.	-.007 (.07)	.009 (.07)	.065 (.08)	.070 (.07)
RR*ERQ Cog R.	-.023 (.07)	.039 (.07)	.035 (.08)	.004 (.07)
ERQ Exp. Suppress.	-.084 (.06)	-.176 (.06)	-.175 (.07)	-.127 (.06)
RR*ERQ Exp. Sup.	.041 (.06)	.032 (.06)	.010 (.08)	.078 (.06)
RRS Total	-.132 (.06)	-.192 (.06)	-.160 (.06)	-.044 (.06)
RR*RRS Total	.061 (.06)	.082 (.06)	.101 (.06)	.066 (.06)
RRS Brooding	-.092 (.06)	-.131 (.06)	-.119 (.07)	-.040 (.06)
RR*RRS Brooding	.023 (.06)	.026 (.06)	.075 (.07)	.063 (.06)
RRS Reflection	-.056 (.06)	-.091 (.06)	-.041 (.06)	-.078 (.06)
RR*RRS Reflection	.036 (.06)	.063 (.06)	.070 (.06)	.081 (.06)
CBAS Bx Social	-.109 (.05)	-.168 (.06)	-.160 (.06)	-.065 (.06)
RR*CBAS Bx Soc.	.042 (.05)	.047 (.05)	.079 (.06)	.048 (.07)
CBAS Bx Non-social	-.132 (.05)	-.144 (.06)	-.112 (.07)	-.109 (.07)
RR*CBAS Bx Nons	.045 (.06)	.074 (.06)	.122 (.07)	.117 (.07)

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
CBAS Cog Social	-.118 (.06)	-.058 (.05)	-.039 (.07)	-.042 (.06)
RR*CBAS Cog S.	-.049 (.06)	-.056 (.06)	.003 (.07)	.009 (.07)
CBAS Cog N-social	-.005 (.06)	-.046 (.06)	-.008 (.07)	-.032 (.07)
RR*CBAS Cog Ns.	-.014 (.05)	.023 (.06)	.070 (.07)	.083 (.07)
SBI Total	.120 (.06)	.140 (.06)	.149 (.05)	.064 (.07)
RR*SBI Total	.084 (.06)	-.014 (.07)	-.090 (.06)	-.074 (.08)
SBI Anticipating	.037 (.06)	.038 (.07)	.051 (.07)	.061 (.07)
RR*SBI Anticipat.	.052 (.06)	-.048 (.07)	-.084 (.08)	-.068 (.08)
SBI Savoring	.114 (.06)	.135 (.06)	.098 (.07)	.060 (.07)
RR*SBI Savoring	.080 (.06)	-.038 (.06)	-.079 (.07)	-.062 (.07)
SBI Reminiscing	.145 (.05)	.081 (.06)	.036 (.07)	.017 (.07)
RR*SBI Reminis.	.033 (.05)	.024 (.06)	.013 (.06)	-.042 (.06)
MAAS	.085 (.06)	.120 (.06)	.109 (.07)	.076 (.07)
RR*MAAS	-.034 (.06)	-.027 (.06)	-.030 (.07)	-.037 (.06)

Note. AAQ = Acceptance and Action Questionnaire, ERQ = Emotion Regulation Questionnaire, RRS = Ruminative Responses Scale, CBAS = Cognitive Behavioral Avoidance Scale, SBI = Savoring Beliefs Inventory, MAAS = Mindful Attention Awareness Scale, RR = BAS Reward Responsiveness, Cog = cognitive, Exp. = expressive, Bx = behavioral, R = reappraisal, Ns = nonsocial, S = social. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 16

HLM Results- Positive/ Negative Affect and Baseline Emotion Regulation's Interaction with HPS

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.016 to -.000 (.06 to .06)	-.015 to .047 (.05 to .06)
HPS	.181 to .239 (.06 to .06)***	.127 to .171 (.05 to .06)**
Mindfulness	.091 (.02)***	-.217 (.03)***
HPS*Mindfulness	-.037 (.02)	.018 (.03)
Suppression	-.024 (.03)	.243 (.03)***
HPS*Suppression	.051 (.03)	.006 (.03)
Reappraisal	.246 (.03)***	-.055 (.03)
HPS*Reappraisal	.034 (.03)	-.002 (.03)
Rumination	-.039 (.03)	.328 (.03)***
HPS*Rumination	.029 (.03)	.033 (.03)
Acceptance	.258 (.02)***	-.234 (.03)***
HPS*Acceptance	.056 (.02)**	-.017 (.03)
Behavioral Avoid.	.026 (.02)	.084 (.03)**
HPS*Behav. Avoid.	.031 (.02)	.011 (.03)
Distraction	.030 (.02)	.130 (.03)***
HPS*Distraction	-.007 (.02)	.016 (.03)
Experiential Avoid.	.102 (.02)***	.016 (.03)
HPS*Exp. Avoid.	.015 (.02)	.008 (.03)
Procrastination	-.077 (.02)***	.138 (.02)***
HPS*Procrastination	.024 (.02)	-.003 (.02)
Reflection	.199 (.02)***	-.102 (.03)***
HPS*Reflection	.049 (.02)*	.014 (.02)
Savoring	.231 (.03)	-.108 (.03)***
HPS*Savoring	.005 (.03)	-.004 (.03)
Social Support	.113 (.02)***	.020 (.03)

(table continues)

Variables	PA β *(SE)*	NA β *(SE)*
HPS*Social Support	.026 (.02)	.004 (.03)
Substance Use	.014 (.02)	.122 (.03)***
HPS*Substance Use	-.012 (.02)	.002 (.03)

Note. HPS = Hypomanic Personality Scale. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 17

HLM Results- Positive/ Negative Affect and Baseline Emotion Regulation's Interaction with BAS Drive

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.017 to .002 (.06 to .06)	-.015 to .044 (.05 to .06)
DR	.274 to .334 (.06 to .06)***	.081 to .143 (.05 to .06)**
Mindfulness	.090 (.02)***	-.218 (.03)***
DR*Mindfulness	-.028 (.02)	.020 (.03)
Suppression	-.022 (.03)	.245 (.03)***
DR*Suppression	.005 (.03)	.036 (.03)
Reappraisal	.244 (.03)***	-.056 (.03)
DR*Reappraisal	.015 (.02)	.025 (.03)
Rumination	-.037 (.03)	.329 (.03)***
DR*Rumination	.029 (.02)	-.008 (.03)
Acceptance	.257 (.02)***	-.237 (.03)***
DR*Acceptance	.024 (.02)	-.014 (.03)
Behavioral Avoid.	.026 (.02)	.085 (.03)**
DR*Behav. Avoid.	.028 (.02)	.022 (.03)
Distraction	.031 (.02)	.131 (.03)***
DR*Distraction	-.001 (.02)	.041 (.03)
Experiential Avoid.	.101 (.02)***	.017 (.03)
DR*Exp. Avoid.	.044 (.02)*	.005 (.03)

(table continues)

Variables	PA β *(SE)*	NA β *(SE)*
Procrastination	-.074 (.02)***	.138 (.02)***
DR*Procrastination	-.001 (.02)	.006 (.02)
Reflection	.195 (.02)***	-.103 (.03)***
DR*Reflection	.039 (.02)	-.015 (.02)
Savoring	.227 (.03)***	-.108 (.03)***
DR*Savoring	.021 (.03)	-.009 (.03)
Social Support	.113 (.02)***	.021 (.03)
DR*Social Support	.002 (.02)	.001 (.03)
Substance Use	.008 (.02)	.115 (.03)***
DR*Substance Use	.006 (.02)	.048 (.03)

Note. DR = BAS Drive. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 18

HLM Results- Positive/ Negative Affect and Baseline Emotion Regulation's Interaction with BAS Fun Seeking

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.015 to .001 (.06 to .06)	-.015 to .041 (.05 to .06)
FS	.193 to .244 (.06 to .06)***	.068 to .139 (.05 to .06)*
Mindfulness	.090 (.02)***	-.219 (.03)***
FS*Mindfulness	-.011 (.02)	.012 (.03)
Suppression	-.022 (.03)	.244 (.03)***
FS*Suppression	.025 (.03)	.032 (.03)
Reappraisal	.246 (.03)***	-.058 (.03)
FS*Reappraisal	.023 (.03)	.067 (.03)
Rumination	-.036 (.03)	.330 (.03)***
FS*Rumination	.008 (.02)	.011 (.03)

(table continues)

Variables	PA β *(SE)*	NA β *(SE)*
Acceptance	.259 (.02)***	-.237 (.03)***
FS*Acceptance	.024 (.02)	.006 (.03)
Behavioral Avoid.	.028 (.02)	.085 (.03)***
FS*Behav. Avoid.	.024 (.02)	.021 (.02)
Distraction	.029 (.02)	.130 (.03)***
FS*Distraction	.020 (.02)	.025 (.03)
Experiential Avoid.	.103 (.02)***	.017 (.03)
FS*Exp. Avoid.	.031 (.02)	.033 (.03)
Procrastination	-.074 (.02)***	.137 (.02)***
FS*Procrastination	-.006 (.02)	-.002 (.02)
Reflection	.197 (.02)***	-.106 (.03)***
FS*Reflection	.026 (.02)	.043 (.03)
Savoring	.230 (.03)***	-.107 (.03)***
FS*Savoring	.026 (.03)	-.003 (.03)
Social Support	.114 (.02)***	.023 (.03)
FS*Social Support	.013 (.02)	-.018 (.03)
Substance Use	.009 (.02)	.102 (.03)**
FS*Substance Use	.001 (.03)	.075 (.04)*

Note. FS = BAS Fun Seeking. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 19

HLM Results- Positive/ Negative Affect and Baseline Emotion Regulation's Interaction with BAS Reward Responsiveness

Variables	PA β *(SE)*	NA β *(SE)*
Intercept	-.016 to .001 (.06 to .06)	-.014 to .042 (.05 to .06)
RR	.064 to .136 (.06 to .06)*	-.105 to -.044 (.05 to .06)
Mindfulness	.088 (.02)***	-.215 (.03)***

(table continues)

Variables	PA β *(SE)*	NA β *(SE)*
RR*Mindfulness	-.027 (.02)	-.014 (.03)
Suppression	-.023 (.03)	.240 (.03)***
RR*Suppression	.016 (.03)	.062 (.03)*
Reappraisal	.250 (.03)***	-.050 (.03)
RR*Reappraisal	-.007 (.03)	.066 (.03)
Rumination	-.035 (.03)	.328 (.03)***
RR*Rumination	.003 (.03)	-.004 (.03)
Acceptance	.261 (.02)***	-.229 (.03)***
RR*Acceptance	.007 (.02)	-.053 (.03)
Behavioral Avoid.	.029 (.02)	.085 (.03)**
RR*Behav. Avoid.	.037 (.02)	.006 (.03)
Distraction	.029 (.02)	.132 (.03)***
RR*Distraction	.023 (.02)	-.016 (.03)
Experiential Avoid.	.101 (.02)***	.019 (.03)
RR*Exp. Avoid.	.043 (.02)*	.026 (.03)
Procrastination	-.073 (.02)***	.137 (.02)***
RR*Procrastination	-.005 (.02)	-.006 (.02)
Reflection	.199 (.02)***	-.099 (.03)***
RR*Reflection	.047 (.02)*	-.020 (.03)
Savoring	.231 (.03)	-.104 (.03)***
RR*Savoring	.013 (.03)	.040 (.03)
Social Support	.116 (.02)***	.024 (.03)
RR*Social Support	-.004 (.02)	.019 (.03)
Substance Use	.016 (.02)	.123 (.03)***
RR*Substance Use	-.038 (.02)	.058 (.03)*

Note. RR = BAS Reward Responsiveness. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 20

HLM Results for Positive Affect Facets and Emotion Regulation's Interaction with HPS

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.014 to .012 (.05 to .06)	-.013 to .004 (.05 to .06)	-.012 to .016 (.06 to .06)	-.023 to .000 (.06 to .06)
HPS	.116 to .162 (.05 to .06)**	.190 to .247 (.05 to .06)***	.201 to .257 (.06 to .06)***	.142 to .199 (.06 to .06)***
Mindfulness	.176 (.03)***	.127 (.02)***	.093 (.02)***	.058 (.02)**
HPS*Mindfulness	-.051 (.03)*	-.034 (.02)	-.014 (.02)	-.031 (.02)
Suppression	-.107 (.03)**	-.089 (.03)*	-.036 (.03)	.030 (.03)
HPS*Suppression	.056 (.03)	.051 (.03)	.038 (.03)	.054 (.03)
Reappraisal	.225 (.03)***	.259 (.03)***	.221 (.03)***	.224 (.03)***
HPS*Reappraisal	.011 (.03)	.036 (.03)	.029 (.03)	.040 (.03)
Rumination	-.112 (.03)***	-.113 (.03)***	-.020 (.03)	.014 (.03)
HPS*Rumination	.035 (.03)	.021 (.03)	.030 (.03)	.044 (.03)
Acceptance	.279 (.03)***	.284 (.02)***	.237 (.02)***	.232 (.02)***
HPS*Acceptance	.010 (.03)	.062 (.02)**	.068 (.02)***	.034 (.02)
Behavioral Avoid.	-.006 (.03)	.001 (.02)	.022 (.02)	.030 (.02)
HPS*Behav. Avoid.	-.000 (.03)	.029 (.02)	.013 (.02)	.027 (.02)
Distraction	-.016 (.03)	.010 (.02)	.028 (.02)	.046 (.02)*
HPS*Distraction	.014 (.03)	.005 (.02)	-.004 (.02)	-.000 (.02)
Experiential Avoid.	.043 (.03)	.112 (.02)***	.088 (.02)***	.091 (.02)***
HPS*Exp. Avoid.	.042 (.03)	.021 (.02)	.004 (.02)	.030 (.02)

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Procrastination	-.058 (.02)*	-.067 (.02)***	-.056 (.02)**	-.067 (.02)**
HPS*Procrastination	.019 (.02)	.017 (.02)	.009 (.02)	.028 (.02)
Reflection	.196 (.03)***	.203 (.02)***	.176 (.02)***	.184 (.02)***
HPS*Reflection	-.003 (.02)	.046 (.02)	.048 (.02)*	.050 (.02)**
Savoring	.178 (.03)***	.264 (.03)***	.191 (.02)***	.191 (.03)***
HPS*Savoring	.012 (.03)	.007 (.03)	.023 (.02)	-.004 (.03)
Social Support	.089 (.02)***	.113 (.02)***	.116 (.02)***	.102 (.02)***
HPS*Social Support	.006 (.03)	.027 (.02)	.032 (.02)	.033 (.02)
Substance Use	-.029 (.02)	.023 (.02)	.058 (.02)**	.004 (.02)
HPS*Substance Use	.014 (.02)	-.018 (.02)	-.011 (.02)	-.003 (.02)

Note. HPS = Hypomanic Personality Scale. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 21

HLM Results for Positive Affect Facets and Emotion Regulation's Interaction with BAS Drive

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.019 to .012 (.05 to .06)	-.016 to .006 (.05 to .06)	-.014 to .019 (.06 to .06)	-.022 to .000 (.05 to .06)
DR	.104 to .184 (.05 to .06)**	.234 to .299 (.05 to .06)***	.302 to .349 (.06 to .06)***	.241 to .299 (.05 to .06)***
Mindfulness	.174 (.03)***	.126 (.02)***	.092 (.02)***	.057 (.02)**
DR*Mindfulness	-.037 (.02)	-.022 (.02)	-.008 (.02)	-.022 (.02)

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Suppression	-.106 (.03)**	-.087 (.03)**	-.034 (.03)	.031 (.03)
DR*Suppression	.055 (.03)	.011 (.03)	.003 (.03)	.009 (.03)
Reappraisal	.224 (.03)***	.226 (.03)***	.218 (.03)***	.223 (.03)***
DR*Reappraisal	.008 (.03)	.029 (.03)	.025 (.03)	-.001 (.03)
Rumination	-.112 (.03)***	-.112 (.03)***	-.019 (.03)	.016 (.03)
DR*Rumination	.045 (.03)	.035 (.03)	.031 (.02)	.023 (.02)
Acceptance	.275 (.03)***	.282 (.02)***	.237 (.02)***	.228 (.02)***
DR*Acceptance	.010 (.03)	.033 (.02)**	.027 (.02)	.014 (.02)
Behavioral Avoid.	-.006 (.03)	.001 (.02)	.022 (.02)	.030 (.02)
DR*Behav. Avoid.	.013 (.03)	.029 (.02)	.019 (.02)	.013 (.02)
Distraction	-.013 (.03)	.013 (.02)	.030 (.02)	.048 (.02)*
DR*Distraction	-.016 (.03)	-.005 (.02)	-.008 (.02)	-.002 (.02)
Experiential Avoid.	.043 (.03)	.111 (.02)***	.086 (.02)***	.090 (.02)***
DR*Exp. Avoid.	.037 (.03)	.047 (.02)*	.034 (.02)	.039 (.02)
Procrastination	-.056 (.02)*	-.064 (.02)**	-.054 (.02)*	-.063 (.02)**
DR*Procrastination	.011 (.02)	.007 (.02)	-.010 (.02)	-.012 (.02)
Reflection	.193 (.03)***	.198 (.02)***	.174 (.02)***	.180 (.02)***
DR*Reflection	.013 (.02)	.047 (.02)*	.028 (.02)	.033 (.02)
Savoring	.174 (.03)***	.260 (.03)***	.188 (.02)***	.187 (.03)***
DR*Savoring	.051 (.03)	.030 (.03)	.025 (.02)	.010 (.03)

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Social Support	.087 (.02)***	.112 (.02)***	.117 (.02)***	.102 (.02)***
DR*Social Support	.028 (.02)	.016 (.02)	.002 (.02)	-.002 (.02)
Substance Use	-.035 (.02)	.015 (.02)	.054 (.02)*	-.003 (.02)
DR*Substance Use	.032 (.02)	.004 (.02)	-.003 (.02)	.017 (.02)

Note. DR = BAS Drive. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 22

HLM Results for Positive Affect Facets and Emotion Regulation's Interaction with BAS Fun Seeking

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.014 to .014 (.05 to .06)	-.013 to .006 (.05 to .06)	-.012 to .017 (.06 to .06)	-.022 to -.001 (.06 to .06)
FS	.092 to .152 (.05 to .06)**	.166 to .222 (.05 to .06)***	.236 to .279 (.06 to .06)***	.133 to .183 (.06 to .06)**
Mindfulness	.175 (.03)***	.125 (.02)***	.091 (.02)***	.058 (.02)**
FS*Mindfulness	-.026 (.02)	.007 (.02)	.011 (.02)	-.015 (.02)
Suppression	-.107 (.03)**	-.087 (.03)**	-.034 (.03)	.031 (.03)
FS*Suppression	.045 (.03)	.010 (.03)	-.011 (.03)	.049 (.03)
Reappraisal	.229 (.03)***	.260 (.03)***	.221 (.03)***	.226 (.03)***
FS*Reappraisal	-.027 (.03)	.015 (.03)	.017 (.03)	.010 (.03)
Rumination	-.111 (.03)***	-.110 (.03)***	-.017 (.03)	.017 (.03)
FS*Rumination	.040 (.03)	.010 (.03)	.013 (.03)	.017 (.02)

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Acceptance	.277 (.03)***	.285 (.02)***	.239 (.02)***	.232 (.02)***
FS*Acceptance	-.028 (.03)	.009 (.02)	.029 (.02)	.027 (.02)
Behavioral Avoid.	-.004 (.03)	.004 (.02)	.024 (.02)	.032 (.02)
FS*Behav. Avoid.	-.017 (.02)	.027 (.02)	.007 (.02)	.013 (.02)
Distraction	-.013 (.03)	.012 (.02)	.027 (.02)	.045 (.02)*
FS*Distraction	-.006 (.03)	.009 (.02)	.014 (.02)	.025 (.02)
Experiential Avoid.	.046 (.03)	.114 (.02)***	.088 (.02)***	.092 (.02)***
FS*Exp. Avoid.	.007 (.03)	.029 (.02)	.014 (.02)	.031 (.02)
Procrastination	-.057 (.02)*	-.065 (.02)***	-.054 (.02)**	-.064 (.02)**
FS*Procrastination	.031 (.02)	-.002 (.02)	-.016 (.02)	-.007 (.02)
Reflection	.196 (.03)***	.201 (.03)***	.174 (.02)***	.182 (.02)***
FS*Reflection	-.035 (.02)	.015 (.02)	.036 (.02)	.028 (.02)
Savoring	.179 (.03)***	.264 (.03)***	.191 (.02)***	.191 (.03)***
FS*Savoring	.014 (.03)	.022 (.03)	.038 (.02)	.010 (.03)
Social Support	.089 (.02)***	.114 (.02)***	.117 (.02)***	.105 (.02)***
FS*Social Support	.005 (.02)	.011 (.02)	.029 (.02)	.000 (.02)
Substance Use	-.035 (.02)	.010 (.02)	.050 (.02)*	-.004 (.02)
FS*Substance Use	.020 (.03)	.016 (.03)	.009 (.03)	.017 (.03)

Note. FS = BAS Fun Seeking. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 23

HLM Results for Positive Affect Facets and Emotion Regulation's Interaction with BAS Reward Responsiveness

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Intercept	-.016 to .015 (.05 to .06)	-.014 to .004 (.06 to .06)	-.013 to .022 (.06 to .07)	-.022 to .007 (.06 to .06)
RR	.073 to .148 (.05 to .06)**	.085 to .159 (.06 to .06)**	.096 to .159 (.06 to .07)**	.038 to .112 (.06 to .06)
Mindfulness	.171 (.03)***	.123 (.02)***	.090 (.02)***	.056 (.02)**
RR*Mindfulness	-.015 (.03)	-.037 (.03)	-.016 (.02)	-.036 (.02)
Suppression	-.107 (.03)**	-.087 (.03)**	-.035 (.03)	.029 (.03)
RR*Suppression	.011 (.03)	-.000 (.03)	.001 (.03)	.046 (.03)
Reappraisal	.230 (.03)***	.263 (.03)***	.224 (.03)***	.229 (.03)***
RR*Reappraisal	-.058 (.03)	-.007 (.03)	-.006 (.03)	-.008 (.03)
Rumination	-.106 (.03)***	-.109 (.03)***	-.017 (.03)	.018 (.03)
RR*Rumination	.018 (.03)	-.002 (.03)	.013 (.03)	.022 (.03)
Acceptance	.276 (.03)***	.286 (.02)***	.240 (.02)***	.234 (.02)***
RR*Acceptance	.020 (.03)	.013 (.02)	.019 (.02)	-.022 (.02)
Behavioral Avoid.	-.003 (.03)	.005 (.02)	.024 (.02)	.032 (.02)
RR*Behav. Avoid.	-.008 (.03)	.032 (.02)	.016 (.02)	.048 (.02)*
Distraction	-.012 (.03)	.013 (.02)	.028 (.02)	.046 (.02)*
RR*Distraction	.016 (.03)	.012 (.02)	.019 (.02)	.023 (.02)
Experiential Avoid.	.047 (.03)	.113 (.02)***	.087 (.02)***	.089 (.02)***
RR*Exp. Avoid.	-.023 (.03)	.019 (.02)	.027 (.02)	.065 (.02)**

(table continues)

Variables	Serenity β *(SE)*	Joviality β *(SE)*	Self-Assurance β *(SE)*	Attentiveness β *(SE)*
Procrastination	-.053 (.02)*	-.062 (.02)***	-.053 (.02)**	-.062 (.02)**
RR*Procrastination	-.015 (.02)	-.005 (.02)	-.003 (.02)	-.005 (.02)
Reflection	.194 (.03)***	.201 (.02)***	.176 (.02)***	.184 (.02)***
RR*Reflection	-.011 (.03)	.040 (.03)	.030 (.02)	.043 (.02)
Savoring	.176 (.03)***	.264 (.03)***	.191 (.02)***	.191 (.03)***
RR*Savoring	.011 (.03)	.010 (.03)	.026 (.03)	.011 (.03)
Social Support	.091 (.02)***	.117 (.02)***	.119 (.02)***	.107 (.02)***
RR*Social Support	-.018 (.03)	-.010 (.02)	.014 (.02)	-.020 (.02)
Substance Use	-.020 (.02)	.024 (.02)	.060 (.02)**	.007 (.02)
RR*Substance Use	-.018 (.02)	-.024 (.02)	-.030 (.02)	-.033 (.02)

Note. RR = BAS Reward Responsiveness. * $p < .05$; ** $p < .01$; *** $p < .001$

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